AEROWORKS

30cc EDGE 540 ARF-QB

(Quick Build)

ASSEMBLY MANUAL

AEROWORKS
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Thank you for choosing the Aeroworks 30cc EDGE 540 ARF-QB. We put great effort into making this plane the best model you will ever build and fly. We have provided you with the highest quality kit and performance possible. We wish you great success in the assembly and flying of your new Aeroworks 30cc EDGE 540 ARF-QB.

!WARNING!

An R/C aircraft is not a toy! If misused, it can cause serious bodily harm and property damage. Fly only in open areas, and AMA (Academy of Model Aeronautics) approved flying sites. Follow all manufacturer instructions included with your plane, radio, servo's, batteries and engine.

Aeroworks manufacturing warranties this kit to be free from defects in both material and workmanship at the date of purchase. This warranty does not cover any component parts damaged by use or modification. In no case shall Aeroworks liability exceed the original cost of the purchased kit. Further, Aeroworks reserves the right to change or modify this warranty without notice.

In that Aeroworks has no control over the final assembly or materials used for final assembly, No liability shall be assumed nor accepted for any damage resulting from the use by the user of the final user-assembled product. By the act of using the user-assembled product, the user accepts all resulting liability.

We, as the kit manufacturer, have provided you with a top quality, thoroughly tested kit and instructions, but ultimately the quality and fly ability of your finished model depends on how you build it; therefore, we cannot in any way guarantee the performance of your completed model, and no representations are expresses or implied as to the performance or safety of your completed model.

INTRODUCTION

Your new 30cc EDGE 540 ARF-QB is a highly aerobatic airplane. It is capable of both precision and 3D maneuvers. The aircraft builds easily, quickly, and precisely due to its state of the art CAD design, LASER cut technology, and high quality included hardware. We hope you enjoy building and flying your 30cc EDGE 540 ARF-QB.

Great care has been taken in both the design and manufacturing of the 30cc EDGE 540 ARF-QB to allow for the strongest and lightest construction possible. Only the highest quality materials from the covering, paint, wood and hardware have been used in the construction of this model.

The 30cc EDGE 540 ARF-QB has been individually hand built, covered and painted by trained and experienced craftsmen with over 25 years of manufacturing experience. Using CAD design, laser cut technology and jig-built assures accuracy in all stages of production.

The 30cc EDGE 540 ARF-QB is designed for gas engines in the 30cc category. The DLE 30cc engine is shown in the assembly instructions. The aircraft was tested with the DLE 30cc and has outstanding performance. The final choice of engine is left up to the builder. A computer radio is recommended to allow the pilot to take advantage of the full capabilities of this aerobatic aircraft.

IMPORTANT Please read through this manual carefully, before starting the assembly of your new 30cc EDGE 540 ARF-QB . Inventory and inspect all parts and hardware for any imperfections or damage. Notify **Aeroworks immediately** if there are missing or damaged parts.

INTENDED USE

This plane should not be regarded as a toy. This is an aerobatic plane and is recommended for pilots who are beyond the trainer-stage and are comfortable with flying an aerobatic sport plane.

!READ! WARRANTY !READ!

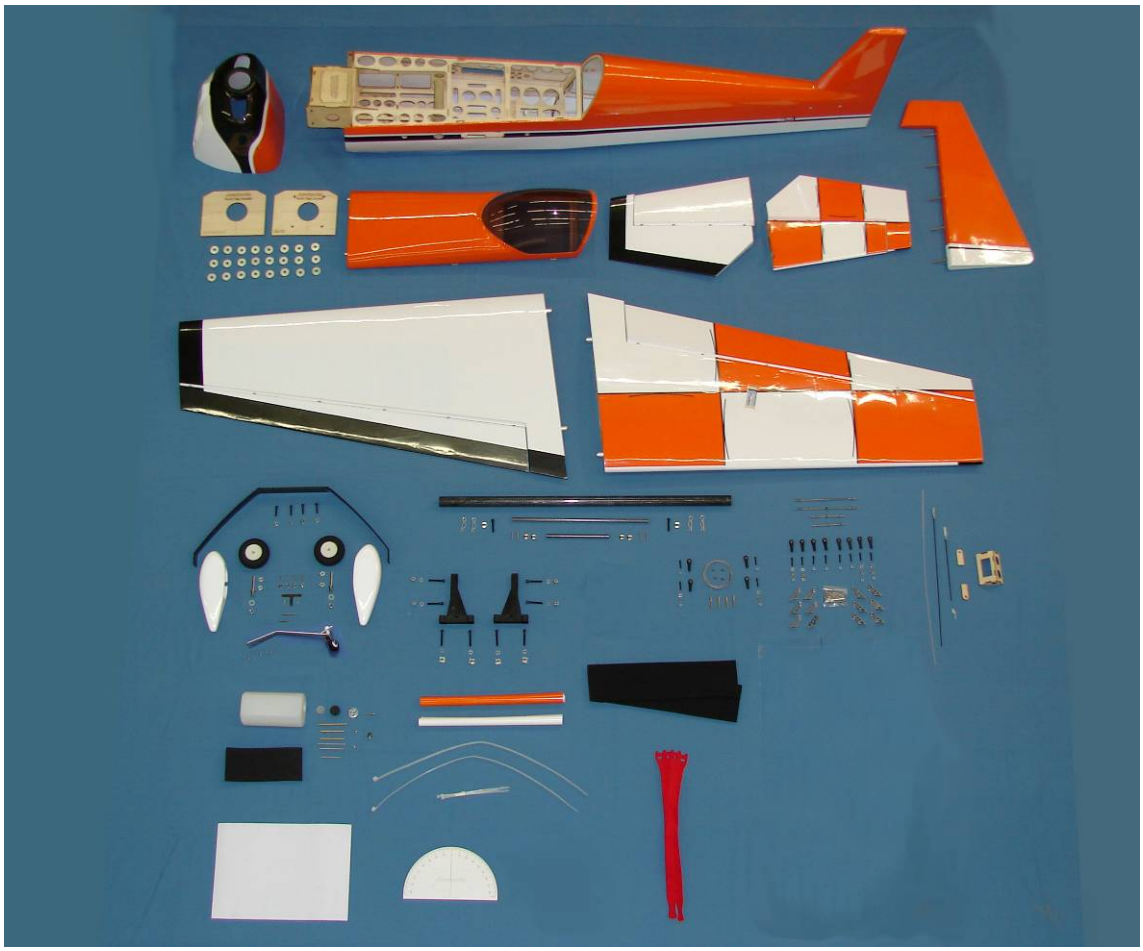
It is important to notify Aeroworks of any damage or problems with the model within 30 days of receiving your airplane to be covered under warranty. All returned parts must be shipped in their original shipping boxes and insured for full replacement value. If you wish to return this aircraft for any reason a 15% restock fee will be charged to the customer. In addition the customer is responsible for all return shipping cost and all prior shipping cost will not be refunded. Parts will be fixed or replaced once the original item is returned at the owner's expense. It is the decision of Aeroworks if the item is to be replaced or repaired.

Aeroworks cannot insure the skill of the modeler and can not influence the builder during the construction or use of this aircraft, and therefore, will not be accountable for any property damage, bodily injury or death caused by this aircraft.

Aeroworks cannot insure the skill of the modeler and can not influence the builder during the construction or use of this aircraft, and therefore,

The purchaser/operator accepts all responsibility of any and all structural or mechanical failures.

KIT CONTENTS



30cc Edge 540 ARF-QB Materials List

Basic Aircraft Parts

Fuselage with pre-installed vertical fin – covered, fire-wall fuel-proofed, pre-drilled three holes for the tail wheel assembly:

(4) 8-32 blind nuts installed for main landing gear
(12) 4-40 blind nuts installed for the mounting of the stab (4), Cowling (4) and Canopy Hatch cover (4)
(1) Hatch cover for the landing gear installed by (2) T2.6x14mm PWA screws
Plastic Canopy with base—painted, with (4) 4-40 blind nuts and (2) 6x15mm aluminum pins – preinstalled on the fuselage
(4) 4-40x16mm hex style bolts for installing the canopy
(4) #6 bonded washers for the mounting of the canopy
(4) 3mm split lock washers for the mounting of the canopy
(1) 3.5(o.d.) x800mm Antenna tube installed
(2) 3.5(o.d.) x80mm pull-pull exit tube installed
(2) Elevator servo string installed

Left Wing with Aileron – covered: Pre-drilled for the mounting of the control horns

(1) 8-32 blind nut installed for the wing mounting.
(2) locator pins installed pre-drilled hole for cotter pin
(5) pin point hinges glued
(1) Aileron servo string installed

Right Wing with Aileron – covered: Pre-drilled for the mounting of the control horns

(1) 8-32 blind nut installed for the wing mounting.
(2) locator pins glued pre-drilled hole for cotter pin

(5) pin point hinges installed
(1) Aileron servo string installed

Horizontal Stabilizer with elevator assembly with (8) pin point hinges (glued)---covered. Elevators Pre-drilled for the mounting of the control horns

Rudder with (5) pin point hinges (not glued) – covered Rudder Pre-drilled for the mounting of the control horns and T-arm of tail wheel

SUB ASSEMBLIES:

#1:
(1) Fiberglass Cowling w/ inside ring glued—painted with (4) screws holes
(4) 4-40x16mm hex style bolts for mounting cowling
(4) #6 bonded washers for mounting cowling
(4) 3mm split lock washers for mounting cowling.

#2:
(1) Carbon Main Landing Gear
(2) 4mmx33mm AL Axle Bolts
(2) M6 lock nuts
(4) 4mm i.d. Wheel Collars with set-screws
(2) 63mm Dia. (2.5") Main Wheels (Lite Type)
(4) 4-40x14mm hex style bolts for mounting wheel pants
(4) 3mm flat washer for mounting wheel pants
(4) 3mm split ring lock washer for mounting wheel pants
(4) 8-32x20mm hex head bolts for mounting main landing gear
(4) 4mm flat washers for mounting main landing gear
(4) 4mm split ring lock washers for mounting main landing gear.

#3:
(2) Wheel Pants—1 Left and 1 Right---Painted
(4) 4-40 blind nuts installed on the wheel pants, 2 per side.

#4:
(1) Aluminum Tail Wheel Assembly – Small

#5:
(1) 23mm o.d. carbon/fiberglass Wing Tube
(2) 8mm o.d. Carbon Stab Tubes – one front and one rear
(2) 8-32x25mm Hex head bots for wing mounting
(2) #8 bonded washer for wing mounting
(2) 4mm split ring lock washers for wing mounting
(4) 4-40x14mm Hex style head bolts for stab mounting
(4) #6 bonded washer for stab mounting
(4) 3mm split ring lock washers for stab mounting
(4) 1.8mm cotter pins

#6:
(2) 4-40 3" Left hand and Right hand threaded pushrods with nuts for ailerons
(2) 4-40 4" Left hand and Right hand threaded pushrods with nuts for elevators
(1) Wrench for the left hand and right hand threaded pushrod
(8) Brass spacers – 2 for ailerons; 2 for elevators; 2 for throttle; 2 for choke
(12) 4-40 Ball Link – 4 for ailerons; 4 for elevators; 2 for throttle; 2 for choke
(12) 4-40x16mm hex bolts
(12) 4-40 lock nuts
(12) 3mm flat washers

#7:
(2) 1x1000mm plastic coated pull-pull steel cable.
(4) 4-40 Metal R/C links with nuts
(4) 3.5x5mm brass pull-pull swaging tubes
(6) AW double control horns
(36) T2.6x12mm Phillips head mounting screws
(4) 4-40 Ball Links for rudder servo
(4) 4-40x16mm hex head bolts
(4) 4-40 Lock nuts
(2) Brass Spacers
(4) 3 flat washers

#8:
(1) 500mm Plastic Outer Tube – for 2stk hardware
(1) 500mm Plastic Inner Tube – for 2stk hardware
(2) M2 Threaded Rod with Nylon Threaded Coupler – for 2stk hardware
(1) Plywood Plastic Tube Holder – for 2stk hardware
(1) 1.8x300mm one end threaded rod – for 4stk hard ware
(1) Plastic outer tube for threaded rod – for 4stk hard ware
(1) Plastic Pushrod Keeper - for 4stk hardware
(1) Metal threaded clevis – for 4stk hardware
(2) Plywood plastic tube holder – for 4stk hardware
(2) 4-40 Ball Links – for Gas engine
(2) 4-40x16mm Hex Head Bolts – for Gas engine
(2) 4-40 Lock Nuts – for Gas engine
(2) 3 flat washers – for Gas engine
(1) Brass Spacer – for Gas engine
(1) Brass Threaded Coupler – for Gas engine
(1) 4-40x300mm on end threaded Rod – for Gas engine

9:
(1) 450cc (15 oz) Gas/Glow Fuel Tank
(1) Foam Pad for Fuel Tank
(1) Set Large Tubing for Gas
(1) Set Small Tubing for Glow
(1) Large Fuel Clunk for Gas
(1) Small Fuel Clunk for Glow
(1) Fuel Filler Dot Gas/Glow
(2) Brass Fuel Barbs Gas
(1) Tank Stopper Assembly for Glow and Gas
(1) 2 feet of Glow High Quality Fuel Line
(1) Glow Fuel Line for inside of Tank
(5) Small Nylon Ties
(2) Large Nylon Ties

#10:

(1) Throttle servo mounting tray
(2) Plastic Air Scoops for Electric Motor
(3) Engine Mounting Template (DLE 30; Saito 1.80 4stk/OS 1.60 2stk and Universal)
(2) 8x8x300mm Sponge for the receiver and battery
(6) 8x450mm Nylon Ties for the fuel tank mounting
(10) 3x150mm Small Nylon Ties for the fuel line
(1) 356x12.5mm Velcro
(1) Card Stock (8"x11") for making the template for cutting of cowling
(1) Paper Degree Meter for the Rudder - Small
(1) 12mm Aluminum Insert
(6) Rubber Grommets – each for 6mm, 8mm, 10mm – Fuel line and wire guide

#11:

(1) C.G. Buddy

#12:

(1) 300x300mm #877 Orange Covering
(1) 300x300mm #870 White Covering
(1) 300x300mm #846 Pearl Charcoal Covering
(2) 20x1500mm transparent Covering

#13:

(2) 120 size Engine Mounts
(2) 1/4" Wood Spacers
(8) 8-32x30mm Bolts
(8) Flat Washers
(4) Lock Nuts
(4) Blind Nuts
(4) 8-32x20mm Bolts for Electric Motor mounting

#14:

(1) Manual CD

#15:

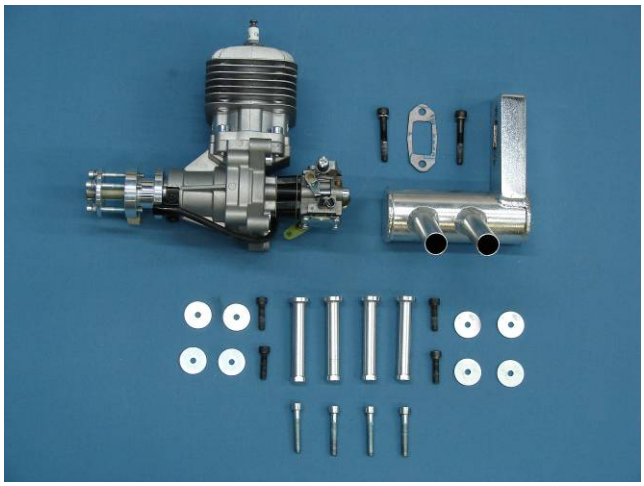
(1) Vinyl Decal Set

HARDEWARE NEEDED TO COMPLETE

Engine Option 1 : Gas

- ◊ 1 - DLE 30 Rear Carb
- ◊ 1 - J'Tec Wrap Around Pitts Muffler
- ◊ 1 - Stock 60mm Standoffs Included with motor
- ◊ 8 - Fender Washers
- ◊ 8 - Motor mounting bolts
- ◊ 3' - Large Gas Fuel Line
- ◊ 1 - 19x8 Propeller

Note: DLE 30 and J'Tec Muffler can be purchased through Aeroworks.



Engine Option 2: Glow 2 Stroke

- ◊ 1 - OS 1.60 FX
- ◊ 1 - Bisson Pitts Muffler
- ◊ 1 - 18x6 Propeller
- ◊ 1 - Glow Fuel Filter

Engine Option 3: Glow 4 Stroke

- ◊ 1 - Saito 1.80
- ◊ 1 - Stock Saito 1.80 Muffler
- ◊ 1 - 18x6 Propeller
- ◊ 1 - Glow Fuel Filter

Motor Options 4: Electric

- ◊ 1 - Rimfire 1.60 Outrunner Motor
  Part # **GPMG4795**
- ◊ 1 - Great Planes Silver Series 80 AMP ESC
  Part # **GPMM1860**
- ◊ 1 - Great Planes Silver Series Programming Card
  Part # **GPMM1895**
- ◊ 1 - Great Planes Electric Motor Mount Extra Large
  Part # **GPMG1265**
- ◊ 2 - 5 Cell 5000mah Li-Poly Batteries
- ◊ 1 - Great Planes 2 to 1 Deans Adapter
  Part # **GPMM1343**
- ◊ 1 - APC 20x10 Propeller

HARDEWARE NEEDED TO COMPLETE

Servo Option 1 : Sport Performance

Hitec 5645 Servos may be used for sport flying. If flying more aggressive aerobatics please see servo option two below.

Note: Servos available through Aeroworks

- ◊ 5 - Hitec 5645 Servos for flight surfaces
- ◊ 1 - Hitec 635HB Servo for throttle

Servo Option 2: Unlimited Performance

Hitec 7985 Servos are recommended for unlimited flying. These servos will provide the best performance possible.

Note: Servos available through Aeroworks

- ◊ 5 - Hitec 7985 Servos for flight surfaces
- ◊ 1 - Hitec 635HB Servo for throttle

Recommended Spinner:

- ◊ 1 - 2 3/4 Spinner- True Turn Recommended

Note: Spinner available from Aeroworks

Electronic Accessories : Receiver

A 6 or 8 channel receiver is recommended, using a receiver with 6-8 channels will allow the builder to mix both the aileron and elevator servo together in the radio. Mixing these functions will result in a great flying, well trimmed airplane.

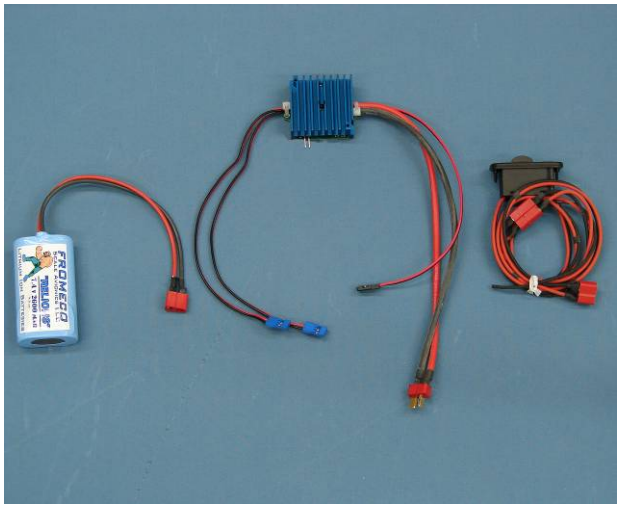
- ◊ 1 - 6-8 Channel 2.4 GHz or PCM Receiver

HARDEWARE NEEDED TO COMPLETE

Receiver Power System :

The Aeroworks 20cc-30cc Power package is recommended. The package consists of the following items:

- ◊ 1 - Fromeco Sahara Regulator Deans in 2 JR out
- ◊ 1 - Fromeco 2600mah Li-Ion Battery w/ Deans
- ◊ 1 - Smart-Fly Super Switch HD w/ Deans



Ignition Power System :

If using the DLE 30 or any other gas engine the Aeroworks Ignition Power System is recommended

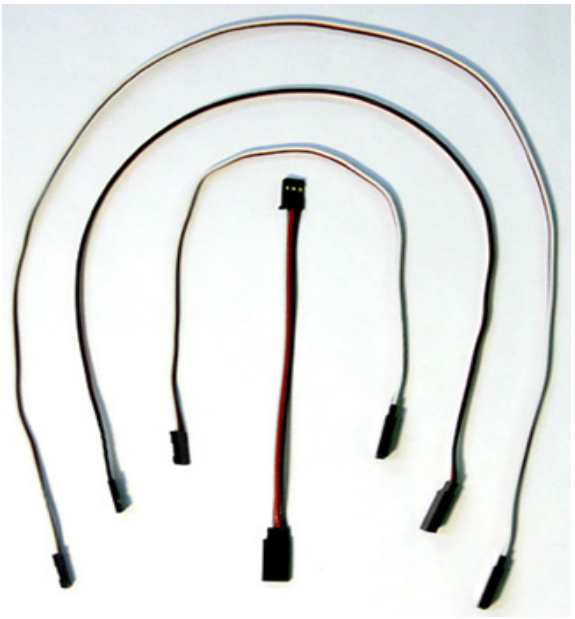
- ◊ 1 - Fromeco 2600mah Li-Ion Battery w/ Universal Connector
- ◊ 1 - Smart-Fly Ignition Regulator
- ◊ 1 - MPI charge switch

Recommended Extensions:

22 AWG extensions are recommended through out the 30cc Edge. The following sizes will be used:

- ◊ 2 - 24” Extensions For Elevators
- ◊ 4 - 6” Extensions For Ailerons

Note: Extensions available from Aeroworks



BUILDING ACCESSORIES NEEDED TO COMPLETE

Tools:

- Allen wrenches US and Metric.
- Dremel cutting disc and sanding drum tool
- Electric drill and selection of bits
- Razor saw
- Flat head screwdriver
- Hobby heat gun
- Hobby iron and covering sock
- Masking tape
- Modeling knife
- Needle nose pliers or crimping tool
- Paper towels
- Pen, pencil or felt tipped marker
- Phillips screwdriver
- Rubbing alcohol
- Ruler and tape measure
- Scissors
- T pins
- Waxed paper
- Wire Cutters

Adhesives:

- 15-30 Minute epoxy
- Blue Loctite
- Epoxy mixing cups, mixing sticks, brushes
- CA kicker (optional)
- Thick, Thin and Medium CA
- Rubbing alcohol
- Wipes

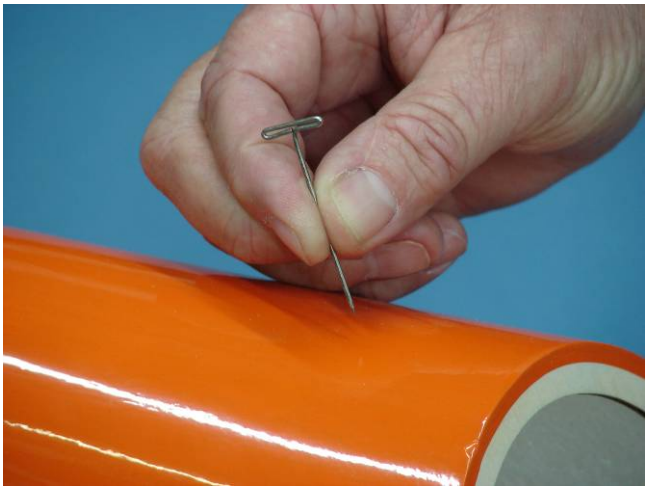
WARNING
Some rubbing alcohols may attack painted parts.

TIGHTENING AND RE-SHRINKING THE COVERING

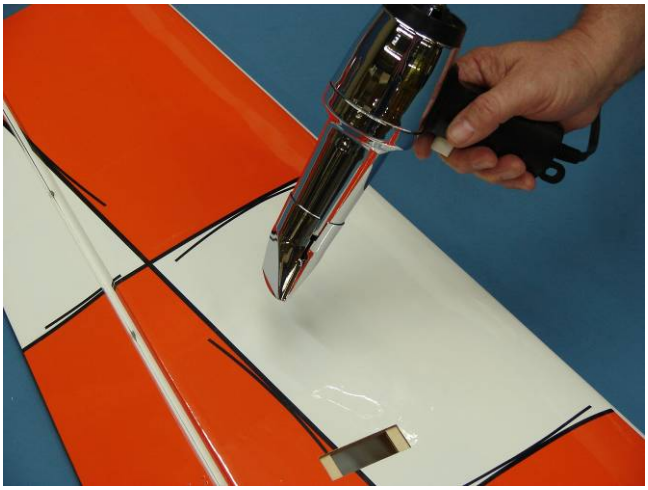
1. Open your kit slowly and take care not to damage any parts of the kit. Remove all parts from their plastic protective covers for inspection. Before doing any assembly or installation of any decals it is very important to re-shrink or re-tighten the already applied covering. Due to the shipping process, heat and humidity changes from different climates, the covering may become lose and wrinkle in the sun. If you take the time to re-tighten the covering, you will be rewarded with a long lasting beautifully covered model.

2. Using your covering iron with a soft sock, gently apply pressure and rub in the covering. If any bubbles occur, your iron may be to hot. Reduce heat and work slowly.

3. If bubbles persist, use a small pin to punch holes in the bubble to relieve trapped air and reheat.



4. Use your heat gun with extreme caution. Take care not to apply too much heat to one area for long periods of time. This may cause the trim colors to over shrink and pull away leaving unsightly gaps on the color lines. The trim stripes are especially vulnerable to over shrinking.



Ultracote™ Colors

1. Your model is covered with Ultracote™ covering. In case of repairs, the colors are:

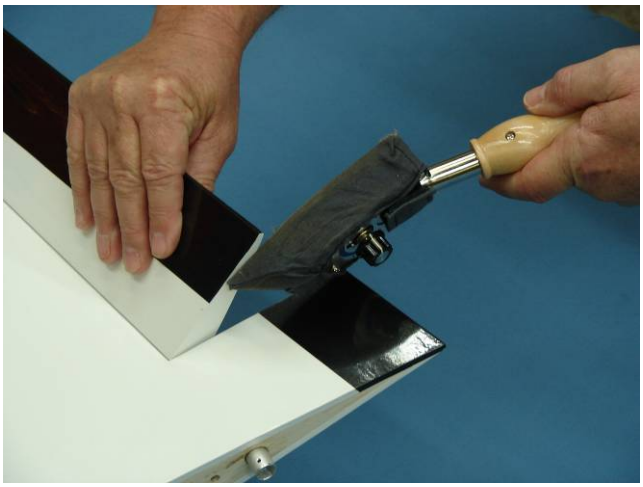
Orange/Black Scheme	
Orange	**#877**
Pearl Charcoal	**#846**
White	**#870**

CHECKING SEAMS AND COLOR OVERLAPS FOR GOOD SEAL

1. Go over all seams and color overlaps with your sealing iron.

Note: Even if your models covering has no wrinkles out of the box it is still very important to go over all seams and overlaps to make certain they are sealed securely. This is especially important at the leading edges of the wings and stabs. We recommend checking the covering after each flying session.

2. Use your covering iron to ensure all edges, seams, and color overlaps are securely sealed.



3. This is an optional step but is recommended.

   Cut strips of clear covering to fit the hinge gaps. Use covering iron to seal the clear covering snugly into the bottom of the hinge lines as shown for air tight hinge seals.

IMPORTANT:

It is the responsibility of the purchaser / operator to check the covering seams and overlaps for security and a good seal.

Aeroworks is not responsible for failure of covering seams or overlaps during flight.

Note: If covering continues to lift apply a small amount of thin CA underneath the covering. Then using a clean rag apply pressure to secure.

One of the most important tools in your flight box is a roll of clear tape. This can be used at the field for fast and easy repairs of the covering. Then once you have finished flying the covering can be permanently repaired.

CHECKING HINGES FOR PROPER THROW

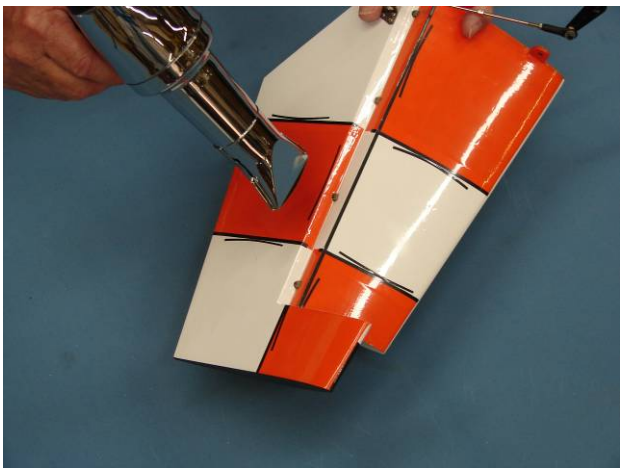
IMPORTANT

1. If control surfaces will not throw to full deflection it may be necessary using a heat gun to apply heat to the knuckle of each hinge. This will allow the hinges to move freely.

2. Evenly heat each hinge along the entire length of the wing. This will allow the hinge glue to soften and the hinge to move into it proper position. Hold the surface at full deflection until the hinges have cooled down and the glue has re-hardened.

3. If the elevator hinges are tight follow the same process as described for the wings.

Note: Once these steps have been completed the hinges will throw to their full deflection.



CHECKING GLUE JOINTS

1. Go over all seams and glue joints with thin CA, this will ensure your model lasts for many seasons to come.

Note: Even if you can visibly see glue on all glue joints it is still recommended that the joints be reglued. Due to changes in humidity during the life of the aircraft glue joints can separate, it is always recommended that the glue joints be checked before each flying session.

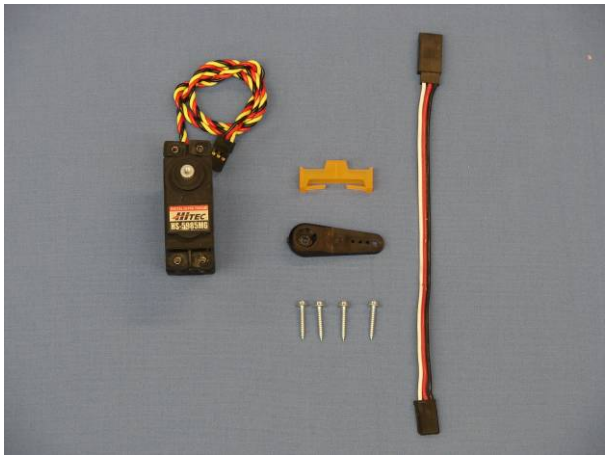
2. Use thin CA to reglue any accessible glue joint as shown below.

WING ASSEMBLY

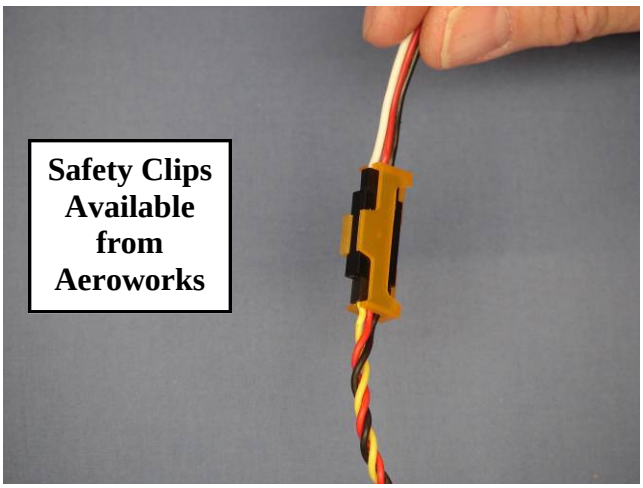
Aileron Servo Installation

1. The ailerons have been pre-hinged and glued to the wing panels and are ready for flight. No other steps are necessary for hinging.

◊ 1 - Wing panel
◊ 1 - Aileron servo
◊ 1 - 1 1/4" Servo Arm
◊ 4 - Servo Mounting Screws (Micro Fastener Part number **STW0209** recommended)
◊ 1 - 6" servo extension
◊ 1 - Aeroworks Safety Clip

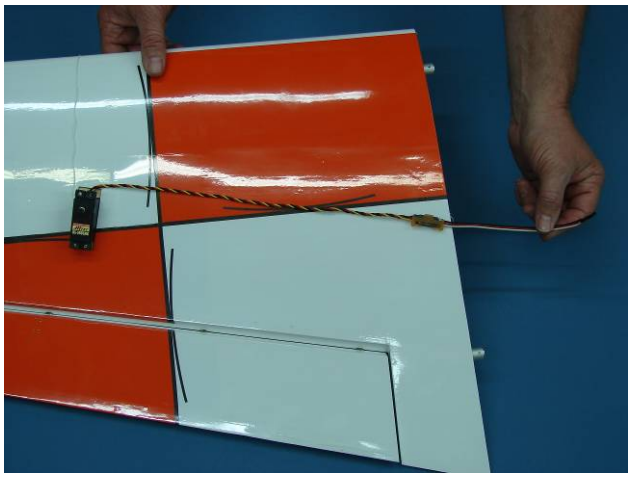


2. Attach the 6" extension to the servo lead and secure with Aeroworks Safety Clip. Ensure the connectors will not come apart from vibration or light tension.

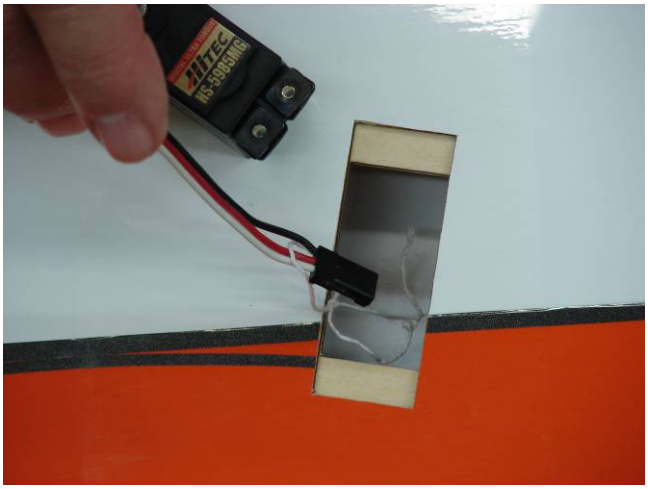


3. Layout the servo on the wing to test fit the installation and ensure servo lead is the correct length.

Note: 165 in. oz. digital, metal geared servos are recommended. Servo selection can be the difference between a great flying model and a model that will crash. Always use brand name high quality servos.

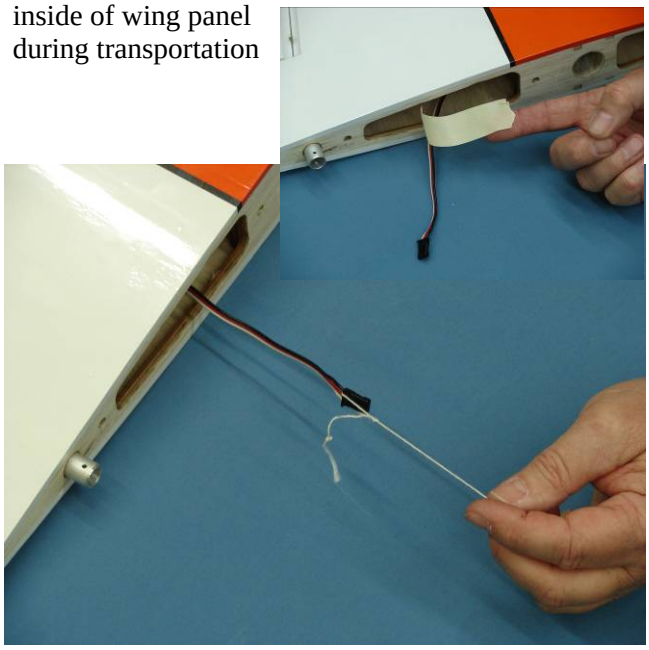


4. Fasten the pull string from the servo hole to the male plug of the servo extension.

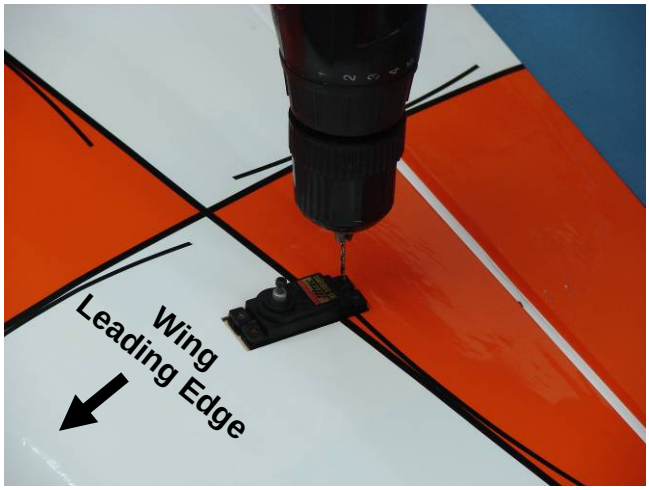


5. Draw the servo extension through the wing and pull through the wing root rib.

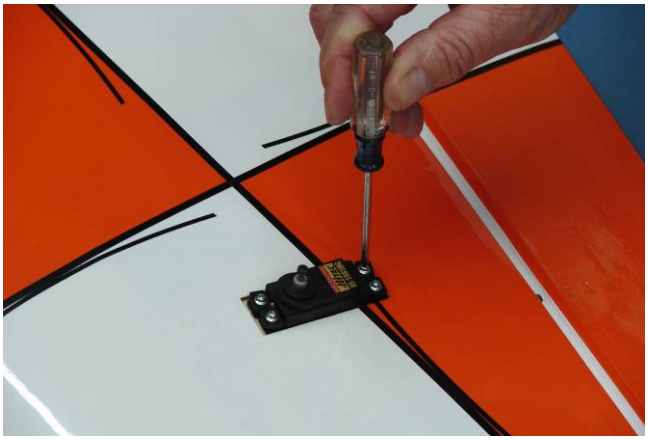
Note: Taping servo lead to the inside of the wing panel will help to prevent lead from dropping back inside of wing panel during transportation



6. Install servo in servo well with the output arm toward the leading edge of the wing. Mark and drill location of servo mounting holes.



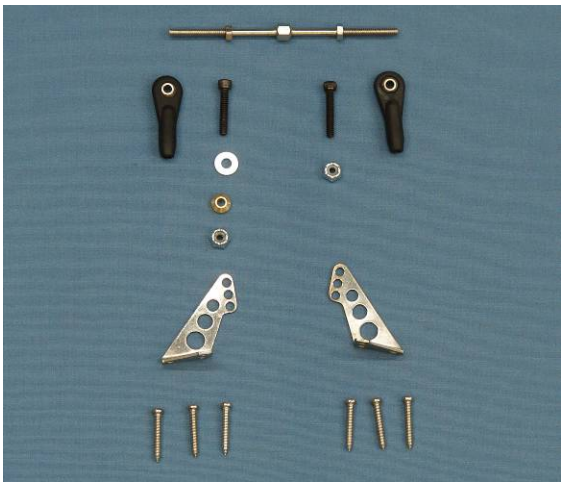
7. Install servo with servo mounting screws.



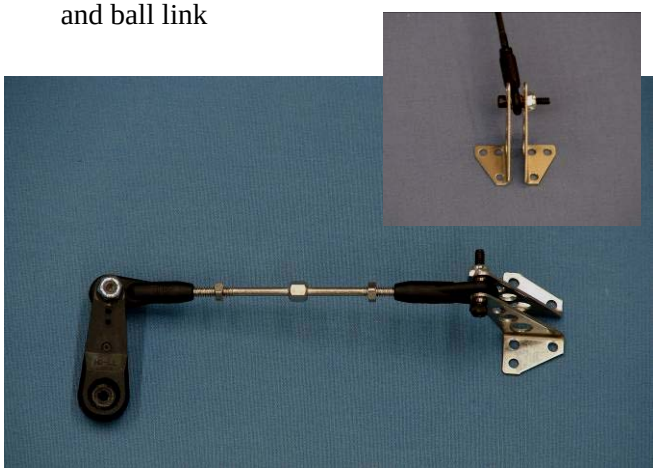
Pushrod / Control Horn Installation

1. Gather the aileron control linkage parts as shown below.

◊ 1 - 3” pushrod
◊ 2 - 4-40 ball link assemblies
◊ 1 - Brass spacers
◊ 1 - Flat washer
◊ 1 - Lock nut
◊ 1 - Left control horns
◊ 1 - Right control horns
◊ 6 - Wood screws for each wing panel
◊ 1 - Adjustment wrench-***Not Pictured***



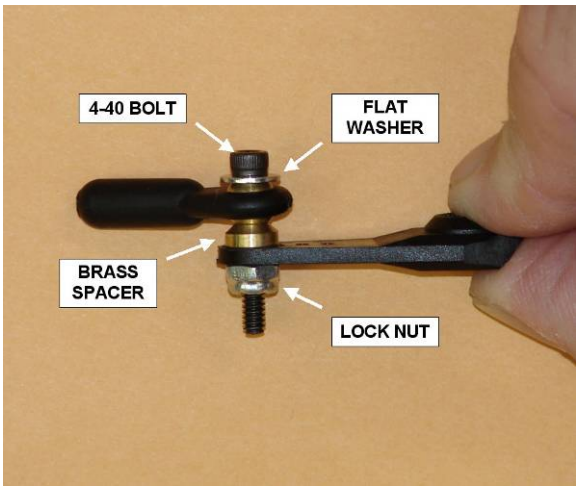
2. Assemble the pushrod and control horn assembly as shown. The ball link goes between the left and right sides of the control horn sides and is secured with a nylon lock nut. Start with the center hole in the control horn. The ball link may be moved up or down for more or less control throw. Brass spacer goes between servo arm and ball link



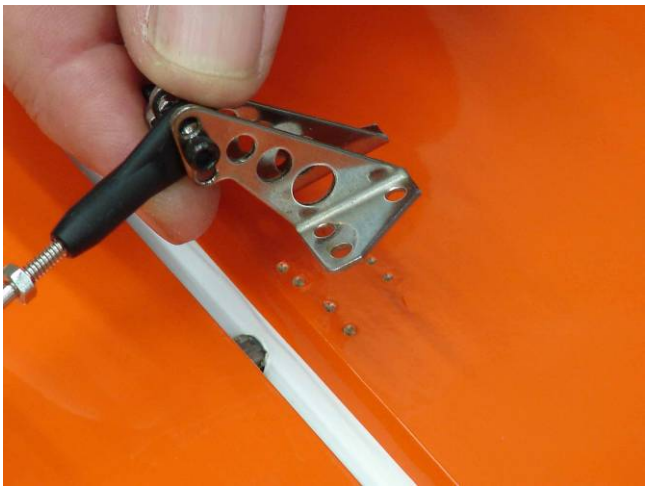
Pushrods have both left and right hand threads. This allows for easier fine adjustments during final setup. Be sure to thread ball link correctly onto pushrod. Ball links are self taping and can be used on either ends of the pushrod. Once ball link has been threaded only rethread it onto the same direction threads.

3. Correct installation of ball link to servo arm shown below.

Note: Flat washer will prevent ball link from coming loose from brass ball.

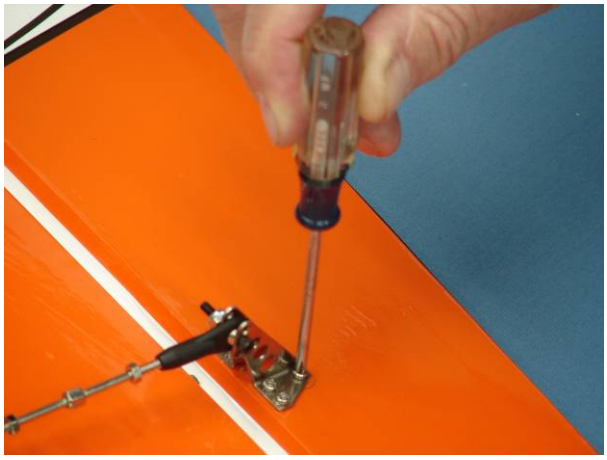


4. Place the control horns over the predrilled mounting holes.



5. Use a drop of thick CA glue on each screw to prevent screws from loosening due to vibration as shown.

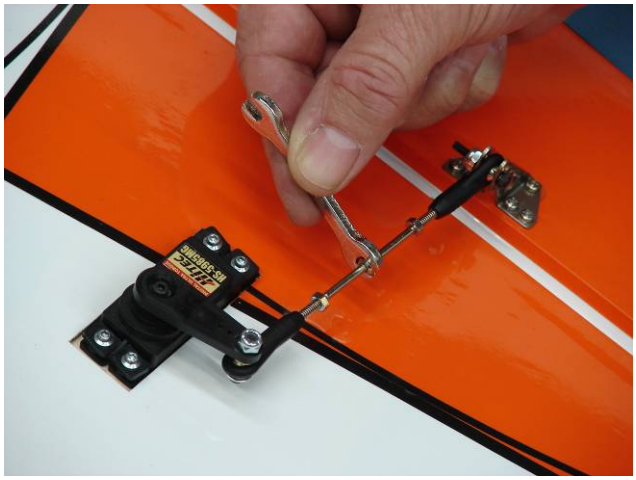
6. Securely fasten the control horn to the aileron with six wood screws.



7. Plug servo and battery into the receiver and turn radio on. Ensure the servo trim and sub trim is centered. Adjust the length of the pushrod so that the servo arm is parallel to the aileron hinge line and the trailing edge of the aileron is even with the trailing edge of the wing in the neutral position.

Note: Control horns have been set at a slight offset to provide full power at full deflection.

8. Use the supplied adjustment wrench to adjust the pushrod as shown below.



9. Use the opposite end of the adjustment wrench to tighten the pushrod jam nuts against the ball links. This will prevent the pushrod from turning in flight.

10. Ensure the servo does not bind at either end point at full deflection. A 1” servo arm is recommended for best results. A 1 1/4” servo arm is required for full deflection of the aileron bevel.

11. Repeat all the above steps for the other wing.

STAB AND ELEVATOR ASSEMBLY

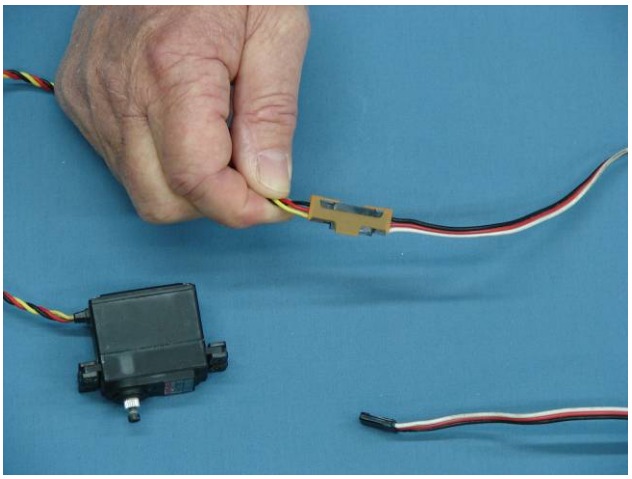
Elevator Servo Installation

1. The elevators have been pre-hinged and **glued** to the stabs and are ready for flight. No other steps are necessary for hinging. Clear covering has been provided for sealing of the hinge gaps if desired.

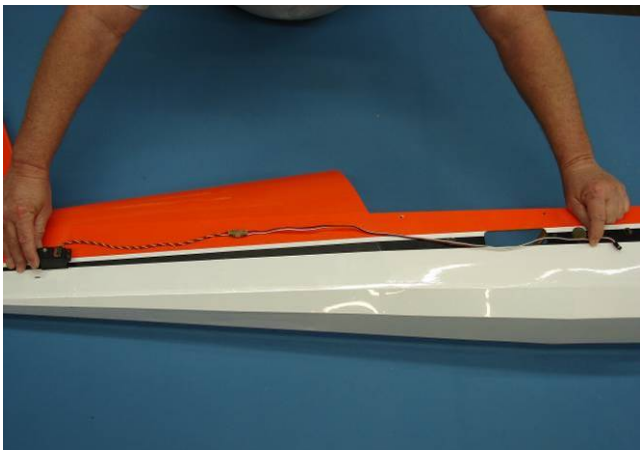
◊ 1 - Stab/Elevator Assembly
◊ 1 - Elevator servo
◊ 1 - 1 1/4" Servo Arms
◊ 4 - Servo Mounting Screws (Micro Fastener Part number **STW0209** recommended)
◊ 1 - 24" servo extension
◊ 1 - Aeroworks Safety Clip

Note: 24" servo extension will be used to connect servos to receiver during a later step.

2. Attach the 24" extension to the servo lead and secure with Aeroworks Safety Clip. Ensure the connectors will not come apart from vibration or light tension.

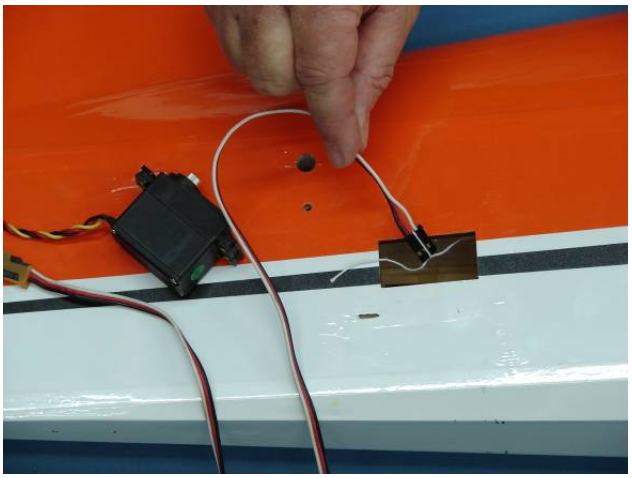


3. Double check the length of the extension by laying it across the fuse as shown.



4. Fasten the pull string from the servo hole to the male plug of the servo extension.

5. Draw the servo extension through the fuse and pull through the radio compartment.



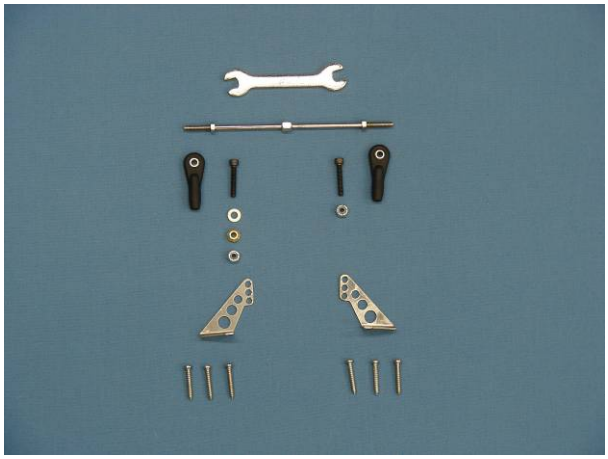
6. Install servo in servo well with the output arm toward the tail. Mark and drill location of servo mounting holes.

7. Install servo with servo mounting screws.

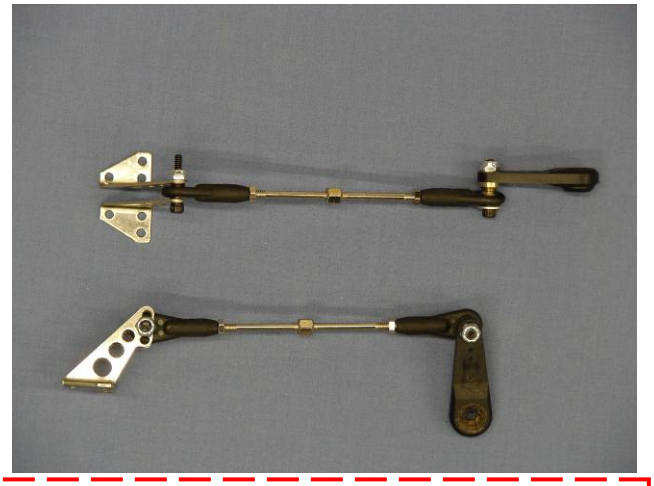
Pushrod / Control Horn Installation

1. Gather the elevator control linkage parts as shown below.

- ◊ 1 - 4” pushrod
- ◊ 2 - 4-40 ball link assemblies
- ◊ 1 - Brass spacers
- ◊ 1 - Flat washer
- ◊ 1 - Lock nut
- ◊ 1 - Left control horns
- ◊ 1 - Right control horns
- ◊ 6 - Wood screws for each wing panel
- ◊ 1 - Adjustment wrench-***Not Pictured***



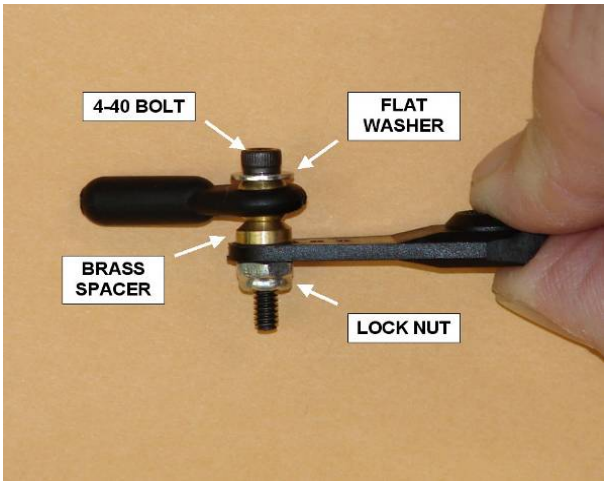
2. Assemble the pushrod and control horn assembly as shown. The ball link goes between the left and right sides of the control horn sides and is secured with a nylon lock nut. Start with the center hole in the control horn. The ball link may be moved up or down for more or less control throw. Brass spacer goes between servo arm and ball link



Pushrods have both left and right hand threads. This allows for easier fine adjustments during final setup. Be sure to thread ball link correctly onto pushrod. Ball links are self taping and can be used on either ends of the pushrod. Once ball link has been threaded only rethread it onto the same direction threads.

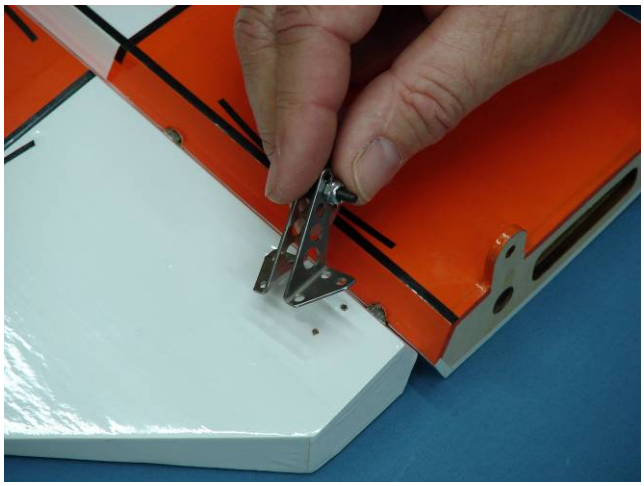
3. Correct installation of ball link to servo arm shown below.

Note: Flat washer will prevent ball link from coming loose from brass ball.



4. Place the control horns over the predrilled mounting holes.

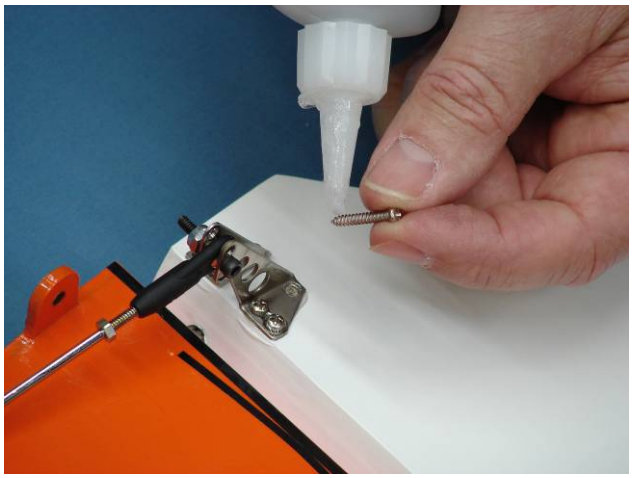
Note: Control horns have been set at a slight offset to allow for maximum torque at full deflection



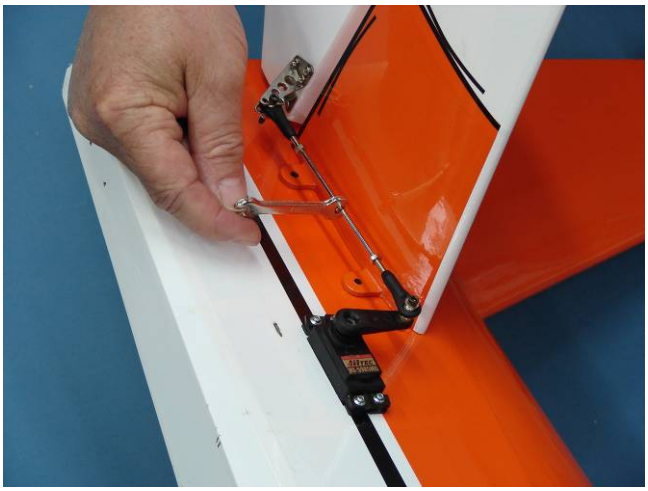
5. Use a drop of thick CA glue on each screw to prevent screws from loosening due to vibration as shown.

6. Mount the control horn using six wood screws.

Note: CA glues have a fast drying time. Remember to work quickly.

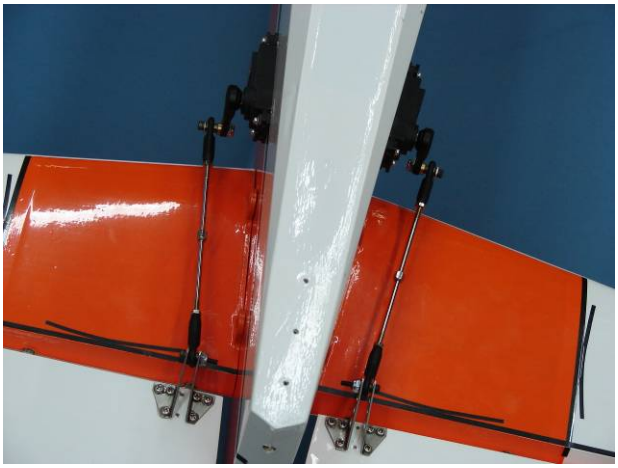


7. Use the supplied adjustment wrench to adjust the pushrod as shown below.



8. Use the opposite end of the adjustment wrench to tighten the pushrod jam nuts against the ball links. This will prevent the pushrod from turning in flight. Repeat steps for other stab/elevator assembly.

9. Finished elevator servo installation shown below.



RUDDER AND PULL – PULL CABLE ASSEMBLY

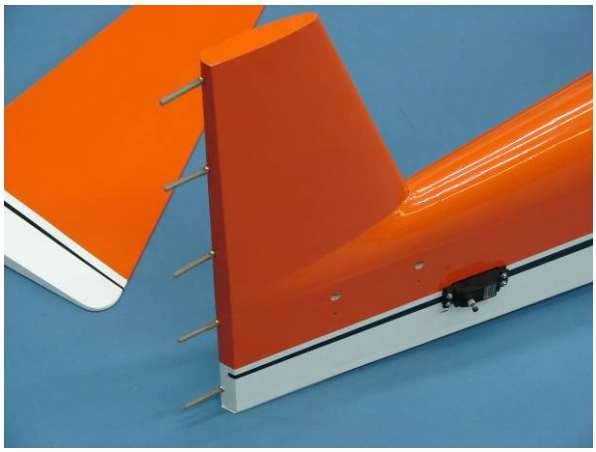
Rudder Installation

1. Gather the rudder, five hinges, rubbing alcohol, petroleum jelly and epoxy materials as shown. Use 15-30 minute epoxy to ensure adequate working and cleanup time.

2. Prep all hinges for installation by applying Vaseline petroleum jelly or light oil to the hinge joint. This ensures no epoxy gets into the hinge during assembly.

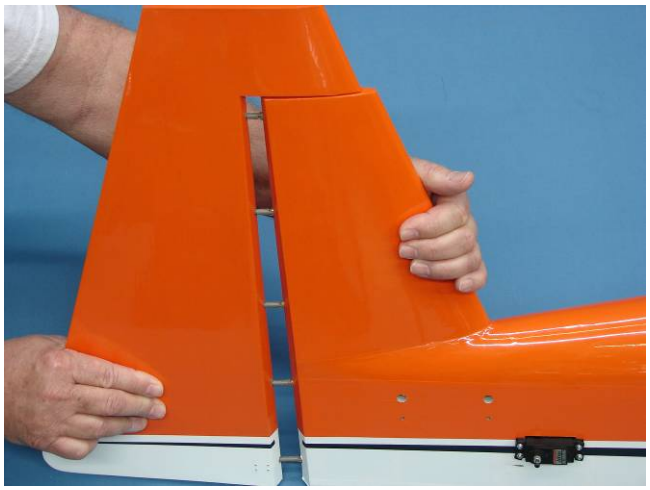
3. Mix epoxy in mixing cup and use a tapered stick to apply the epoxy inside the pre-drilled holes in the trailing edge of the fin. Apply epoxy to one side of each hinge and insert the hinge completely into the hole. Ensure the hinge axis is vertical and parallel to the trailing edge of the fin before epoxy cures. Wipe away excess epoxy with alcohol wetted wipes.

4. Epoxy the hinges into the fin first and allow epoxy to fully cure.



5. Mix epoxy in mixing cup and use a tapered stick to apply the epoxy inside the pre-drilled holes in the leading edge of the rudder. Apply epoxy to trailing edge of each hinge.

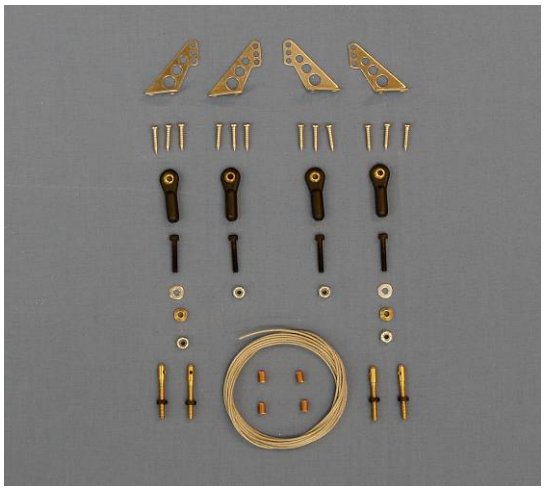
6. Carefully slide the rudder onto each hinge and against the trailing edge of the fin. Wipe away excess epoxy with alcohol wetted wipes.



7. Ensure there is no gap between fin and rudder. Allow epoxy to fully cure. Check you have full rudder deflection before epoxy fully cures.

Rudder Horn, Pull-Pull Cable and Servo Installation

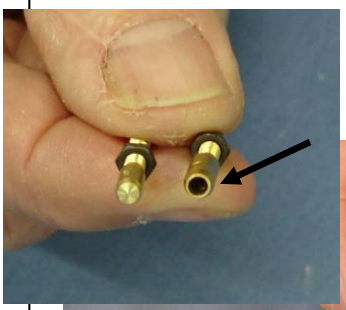
1. Gather the rudder control linkage parts shown below.
   - ◊ 2 - Rudder cables
   - ◊ 4 - Ball link assemblies
   - ◊ 2 - Flat washers
   - ◊ 4 - Lock nuts
   - ◊ 2 - Brass Spacers
   - ◊ 4 - Threaded couplers with lock nut
   - ◊ 4 - Brass swaging tubes
   - ◊ 2 - Left side control horns
   - ◊ 2 - Right side control horns
   - ◊ 12 - Wood screws

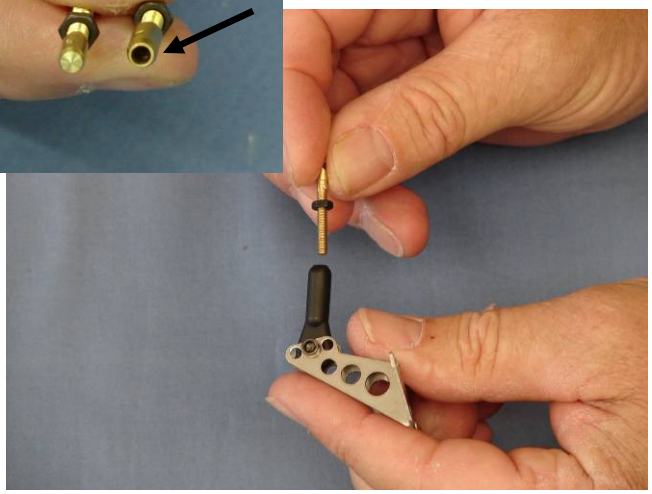


2. Gather the rudder control horn parts as shown below. (2) ball link assemblies, (2) left and (2) right side control horns. Assemble the ball links between the control horns as shown. Secure with nylon lock nut. Start with the center hole in the control horn. The ball link may be moved up or down for more or less control throw.

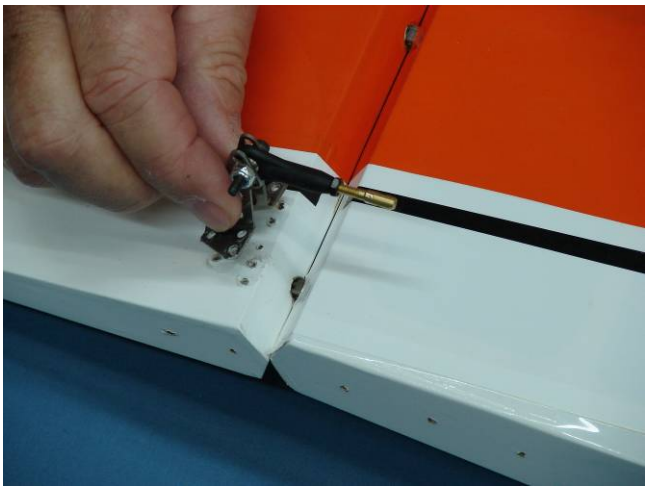
3. Thread brass coupler half way into ball link.

Note: There are two types of 4-40 couplers supplied, (2) are for the throttle and choke pushrods and (4) are for the pull pull system. The ones with the hole in the base are for the throttle and choke.

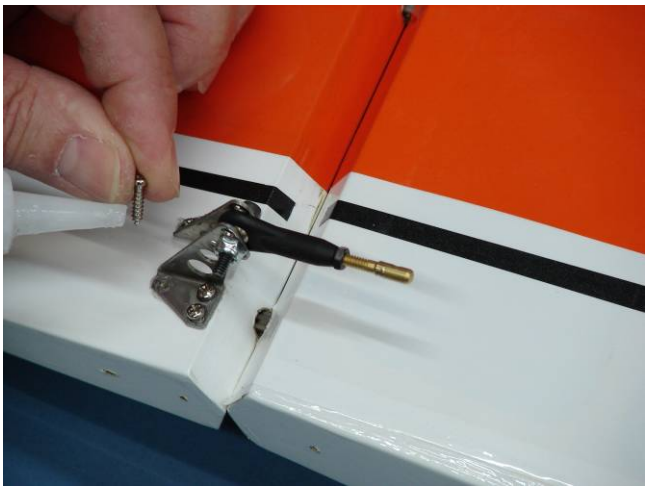




4. Place the control horns over the predrilled mounting holes.



5. Use a drop of thick CA glue on each screw as shown.



6. Mount rudder control horns using six wood screws.

7. Repeat the above steps for mounting the other side rudder control horn.

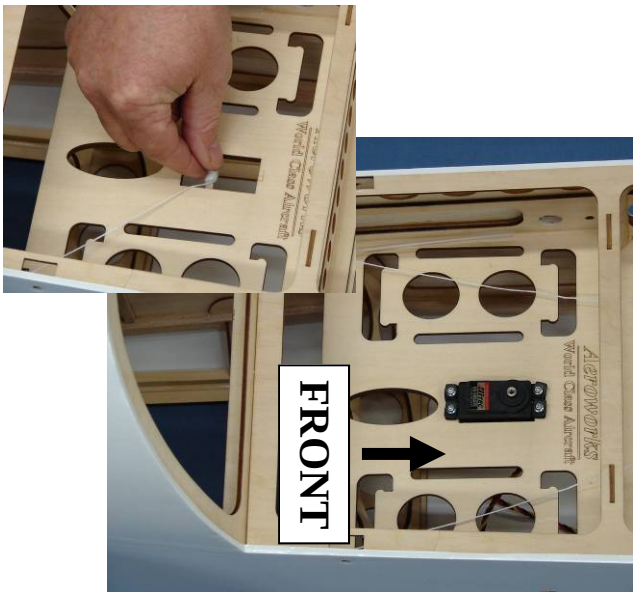
8. Gather the following rudder servo items.

◊ 1 - Rudder servo
◊ 1 - 2 3/4" Servo Arms
◊ 4 - Servo Mounting Screws (Micro Fastener Part number **STW0209** recommended)

Note: 165 in. oz. digital, metal geared servo is recommended. Servo selection can be the difference between a great flying model and a model that will crash. Always use brand name high quality servos.

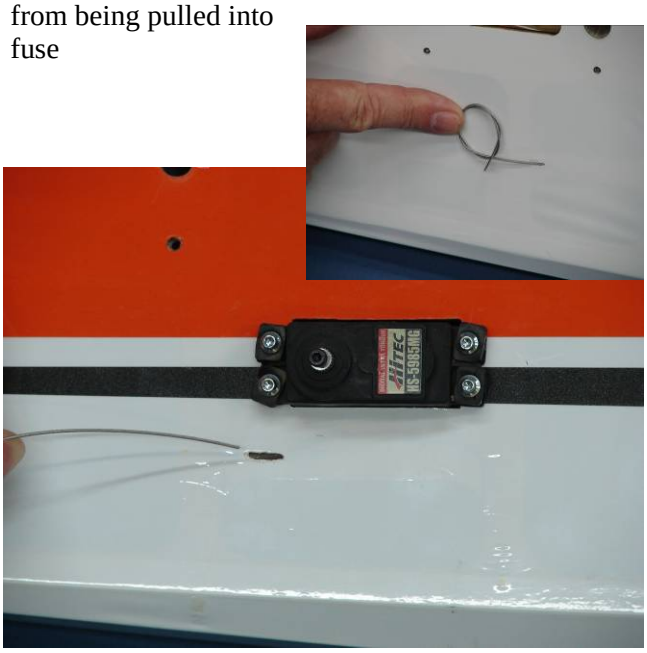
9. Install the rudder servo in the servo cutout with the output shaft to the front.

Note: Remove balsa stick holding the elevator pull strings at this time. Secure the pull strings with tape until the elevator extensions are installed.



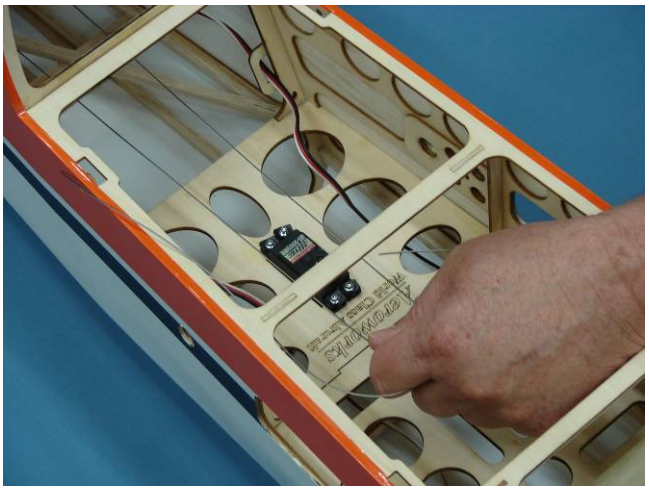
10. Feed one rudder cable through the pre installed cable exit tube in the rear of the fuse toward the front of the fuse. Repeat for other side.

Note: Loop or tape cable to fuse to prevent cable from being pulled into fuse

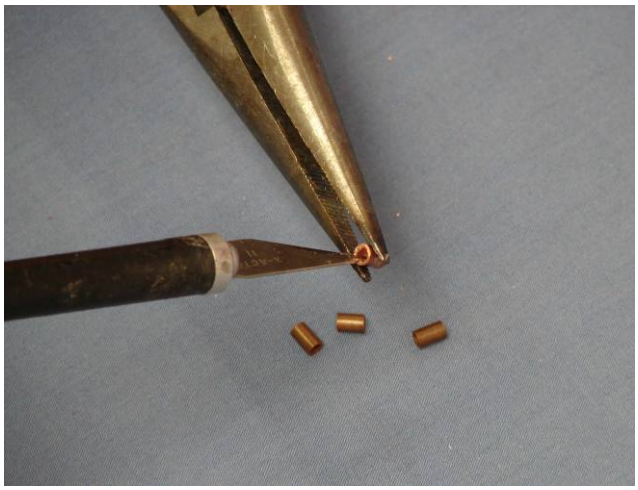


11. Pull the rudder cables from rear of fuse to the rudder servo tray.

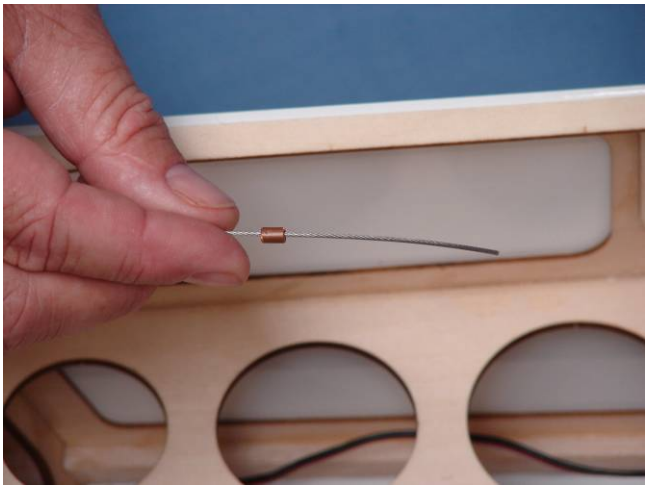
Note: Cables run parallel down fuse and do not cross each other.



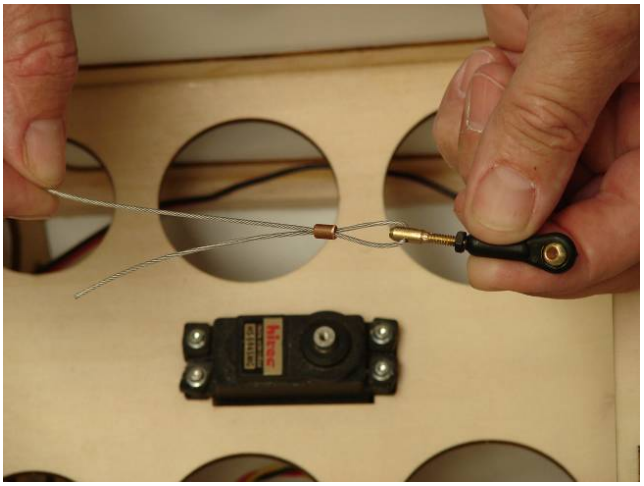
12. Using an X-ACTO knife clean away any burrs from brass swags. This will allow the rudder cable to pass through brass swage easily.



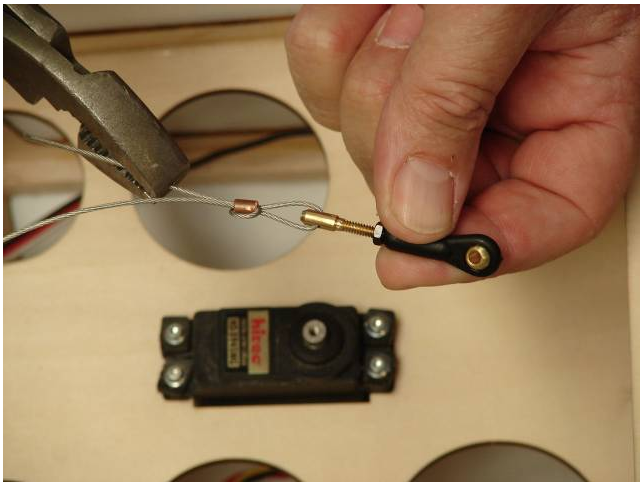
13. Thread cable through brass swage tube.



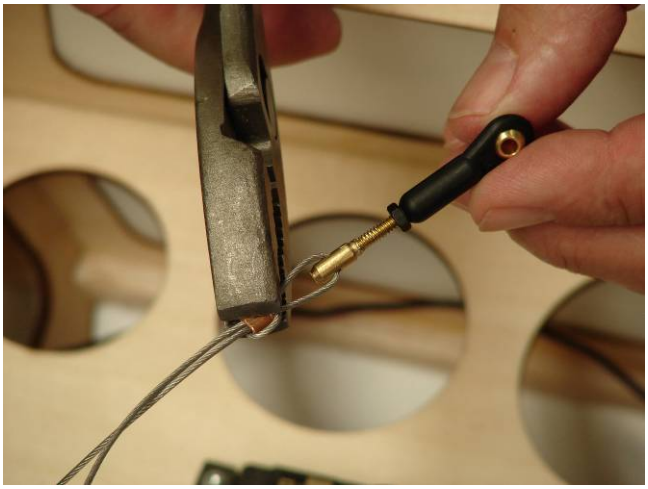
14. Thread cable through the threaded coupler hole, and back through the brass swage tube as shown.



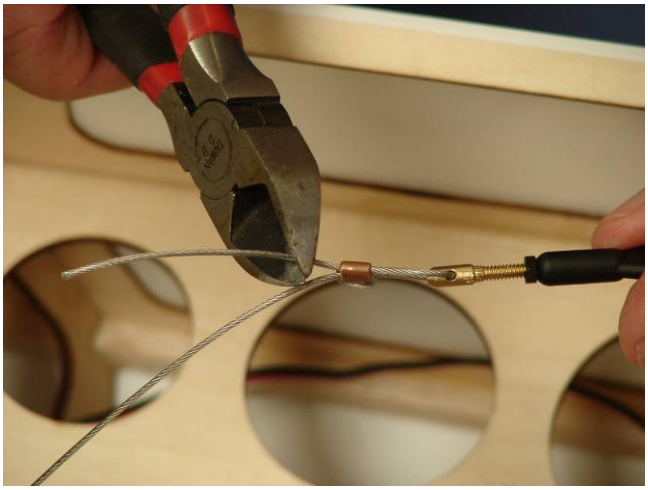
15. Loop the cable back through the brass swage tube and pull tight.



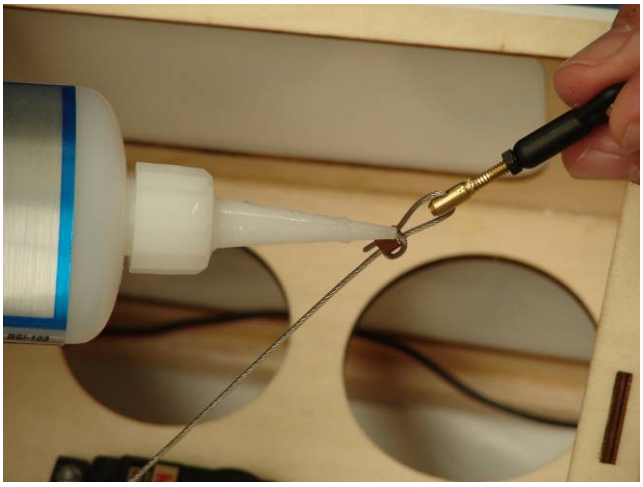
16. Crimp the brass swage tube with a crimping tool or pliers.



17. Cut off excess cable as shown

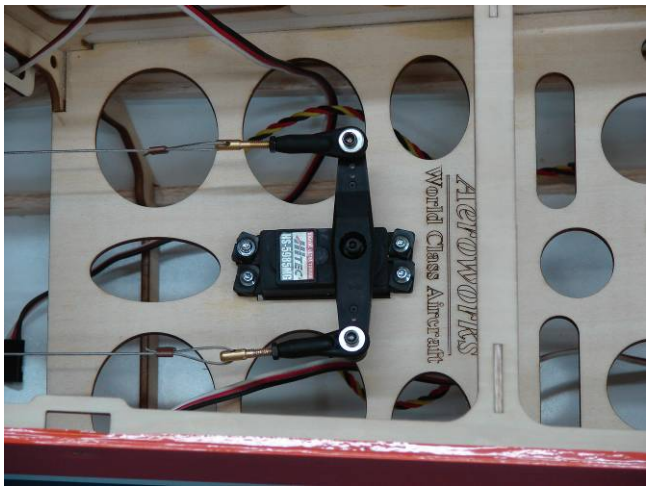


18. A drop of thin CA may be applied to the swage tube to help secure the cable.



19. Attach ball links to the rudder servo arm and then attach the servo arm to the rudder servo as shown.

Note: Use flat washers to prevent ball link from coming loose from the brass ball

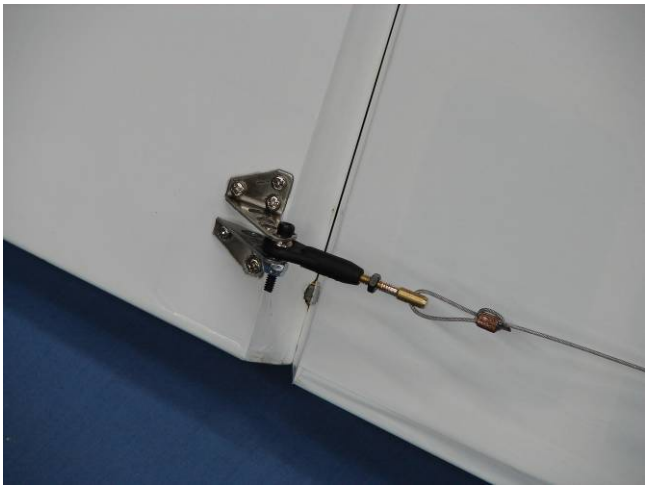


20. Plug the rudder servo into the rudder channel of the receiver and power up. Turn on transmitter to center rudder servo. Ensure servo trim and sub trims are centered.

Note: On metal geared servos use blue Loctite for all Servo arm mounting screws.

21. Tape the rudder balance tab to the top leading edge of the vertical fin in the neutral position as shown. This ensures the rudder is straight when the cables are attached.

22. Attach the ball link to the rudder control horn as shown below. Follow the same steps as shown in the previous pages to install the ball link to the pull pull cable.



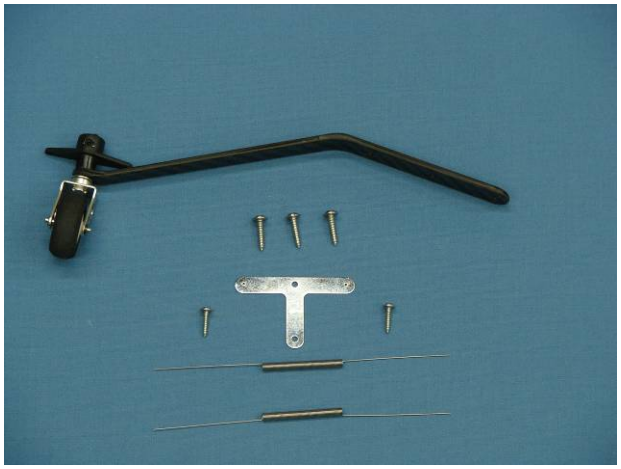
23. Follow the same steps for the opposite side of the rudder as shown below. Rudder pull pull assembly is now complete.

Tail Wheel Installation

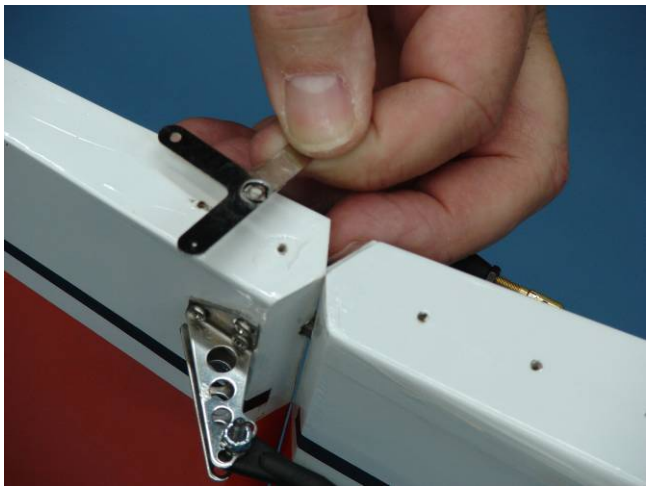
1. Gather the tail wheel parts shown below.

   ◊ 1 - Aluminum tail wheel assembly
   ◊ 3 - Tail wheel mounting screws
   ◊ 1 - Steering tiller
   ◊ 2 - Tiller mounting screws
   ◊ 2 - Steering springs

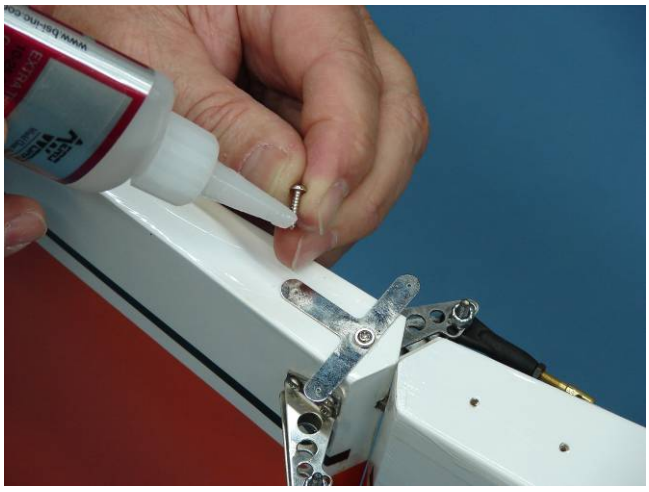
Note: Aftermarket carbon tail wheel shown, your kit includes the aluminum tail wheel assembly. Installation steps will be the same.



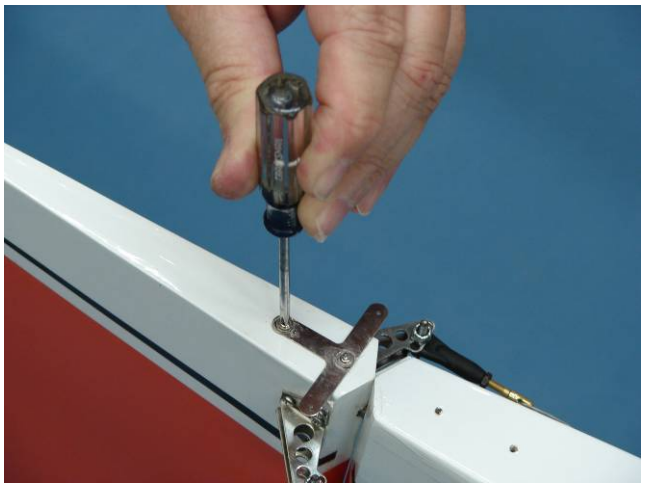
2. Align rudder tiller steering arm with pre drilled mounting holes at bottom of rudder.



3. Apply a drop of thick CA to the tiller arm mounting screws before inserting in the pre-drilled holes.



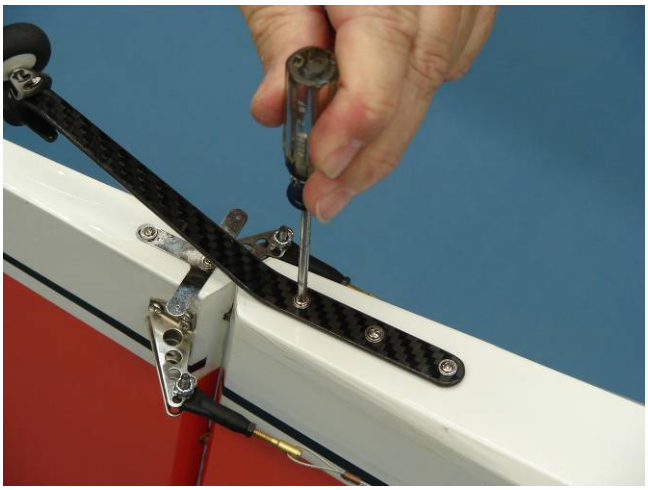
4. Mount the tail wheel steering tiller using two wood screws.



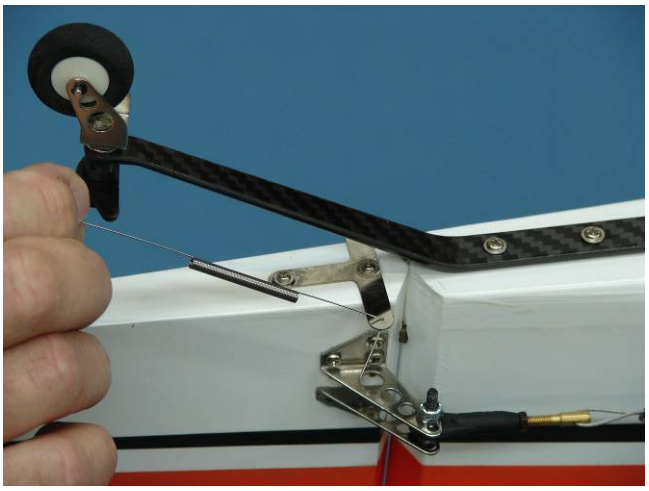
5. Align the tail wheel with pre drilled mounting holes on the bottom of the fuse

6. Place a drop of thick CA on tail wheel strut mounting screws before inserting in the pre-drilled mounting holes on the bottom rear of the fuse.

7. Mount the tail wheel struts using three wood screws.

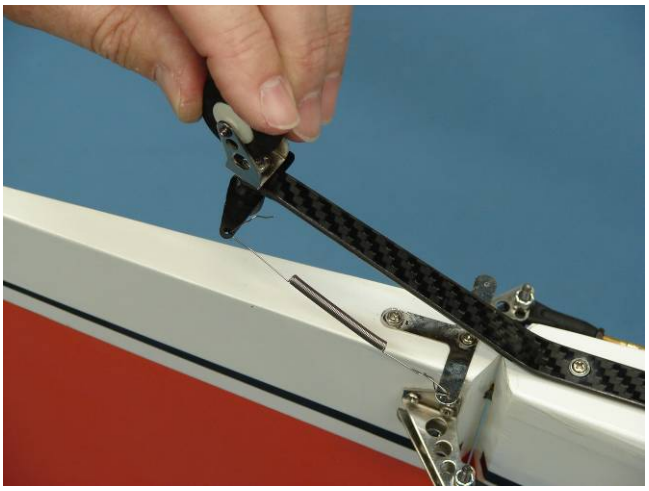


8. Attach the steering spring to the rudder tiller. Center the spring between both tail wheel and steering tillers.



9. Use pliers to twist spring end closed around the rudder steering tiller.

10. With spring centered between tiller arms and tail wheel centered, bend spring wire through tail wheel steering tiller.



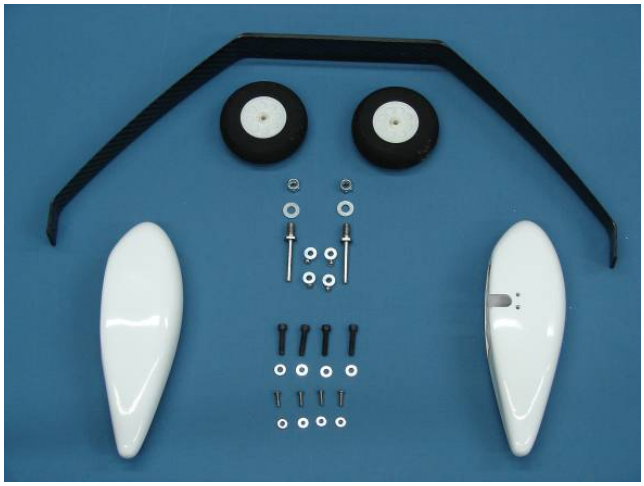
11. Twist spring end tight with pliers.

12. Repeat spring installation for other side.

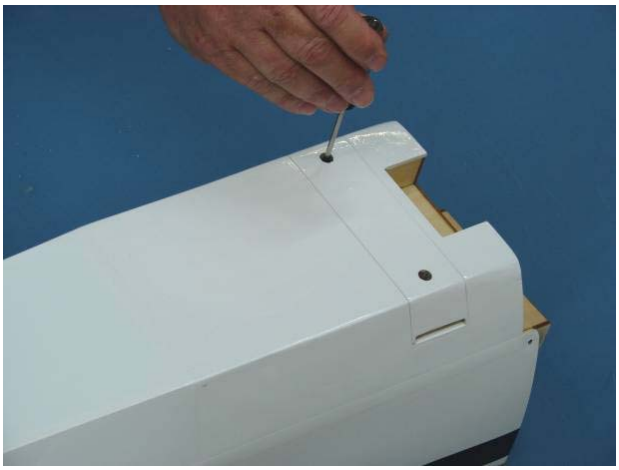
MAIN LANDING GEAR
AND WHEEL PANT ASSEMBLY

Main Landing Gear Installation

1. Gather the landing gear parts as shown below.
   - ◊ 1 - Carbon landing gear strut
   - ◊ 2 - 2 1/2” Foam Tires
   - ◊ 2 - Axles with lock nuts
   - ◊ 4 - Wheel collars
   - ◊ 4 - 8-32 mounting bolts
   - ◊ 4 - 8-32 Lock washers
   - ◊ 4 - 8-32 Flat washers
   - ◊ 2 - Wheel pants
   - ◊ 4 - 4-40 Bolts
   - ◊ 4 - 4-40 Washers

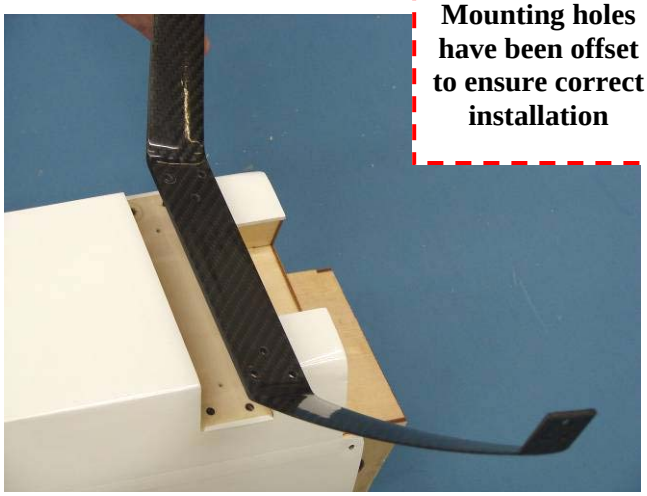


2. Remove the Phillips head screws holding the landing gear cover in place.



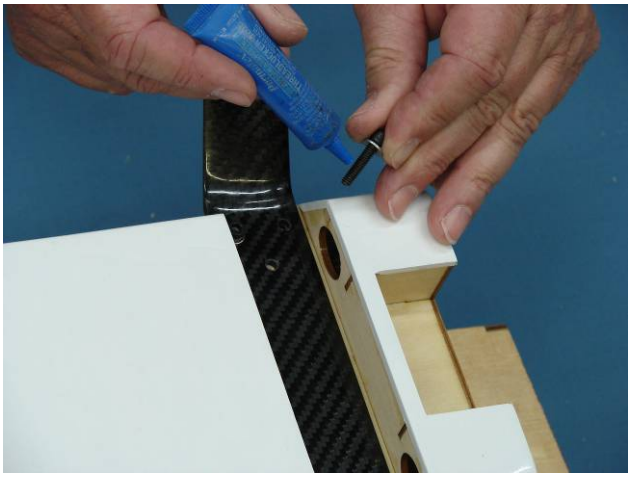
3. Align mounting holes of main landing gear with pre drilled mounting holes in fuselage mounting plate.

Note: Mounting holes have been offset to ensure proper installation of main gear.

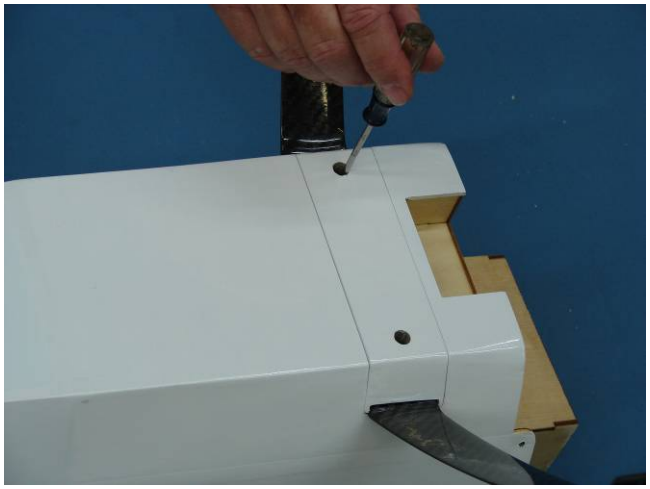


4. Assemble the landing gear bolts with lock washer and flat washer. Use a drop of blue Loc-tite on landing gear bolts before attaching the landing gear.

5. Bolt landing gear strut to fuse with (4) 8-32 bolts and washers.



6. Reinstall the landing gear hatch cover.

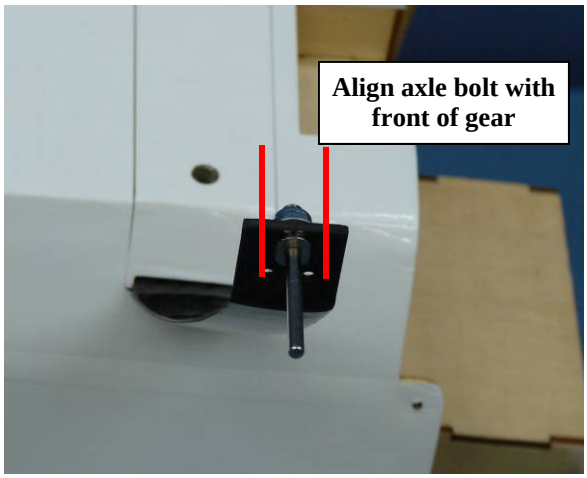


7. Using lock nut install axle to gear.

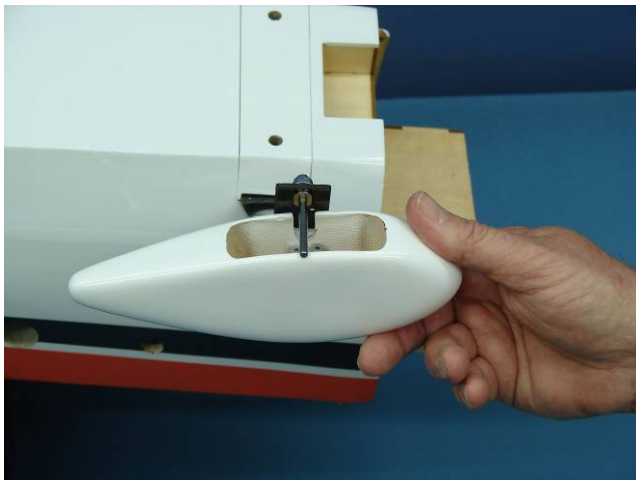
Note: Do not tighten securely yet.

8. Align the flat sides of the axle bolt vertical and snug the lock nut against the landing gear strut.

Note: Do not tighten securely yet.

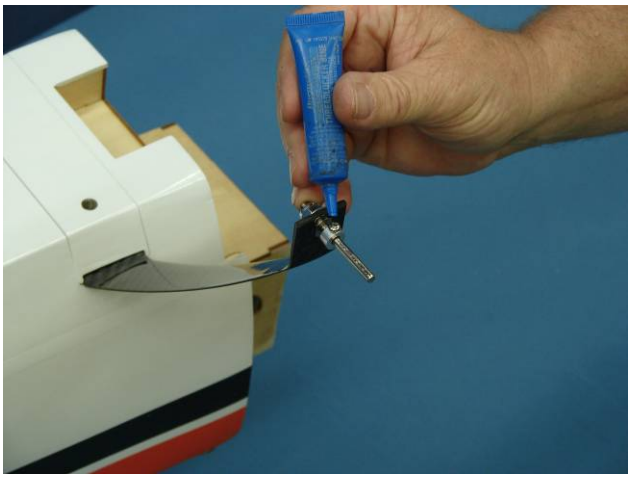


9. Align the wheel pant slot over the axle bolt as shown. Slide the wheel pant slot over the flat sides of the axle bolt and align blind nuts in wheel pants with mounting holes in landing gear.

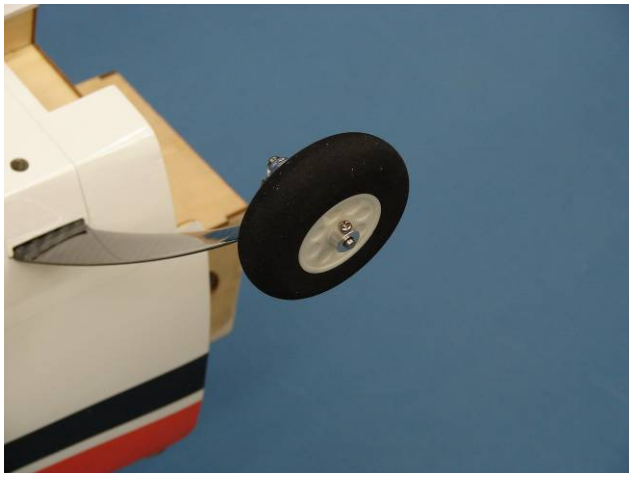


10. Tighten the lock nut against the landing gear strut to secure axle.

11. Install the inner wheel collar on the axle. Use a drop of blue Loctite on the wheel collar set screw and tighten the wheel collar in place.



12. Install the wheel and outer wheel collar. Use blue Loctite on the wheel collar set screw before final tightening.



13. Final installation of wheel pant with two mounting bolts.

Note: Make sure wheel turns freely without binding or rubbing against the wheel pant. Adjust wheel collars in or out until wheel turns freely.

14. Repeat above steps for other wheel and wheel pant.

15. Final landing gear installation shown below.

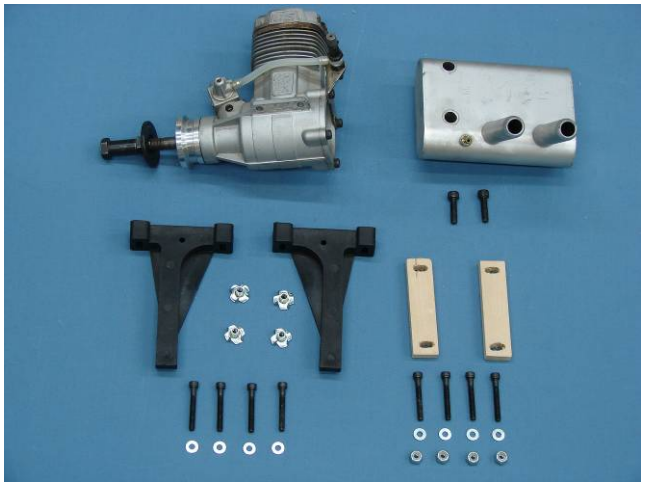
2 STROKE ENGINE INSTALLATION

Engine Installation

1. Gather the items shown below for engine installation.

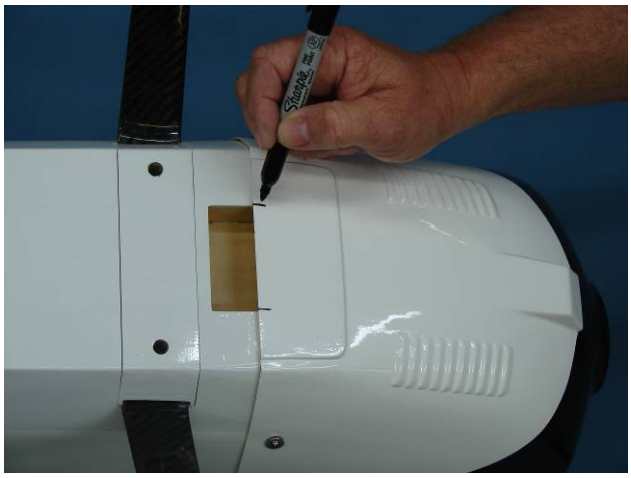
◊ Glow engine of your choice
◊ 8 - 8-32 bolts
◊ 2 - Plywood standoffs
◊ 8 - 3.5mm Flat washers
◊ 4 - 3.5mm Split lock washers
◊ 4 - 8-32 Lock nuts
◊ 4 - 8-32 Blind nuts

Note: An OS 1.60 FX 2 stroke is shown depending on the choice of engine the installation may differ slightly.

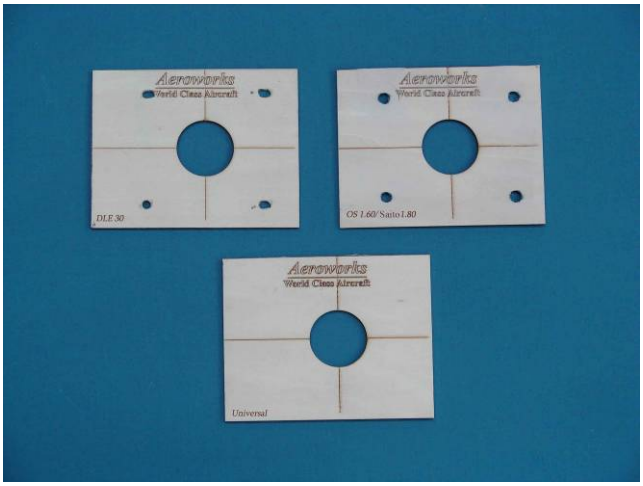


2. Align cowl to fuse and bolt in place. Mark the location of the air exit from the fuse onto the cowling.

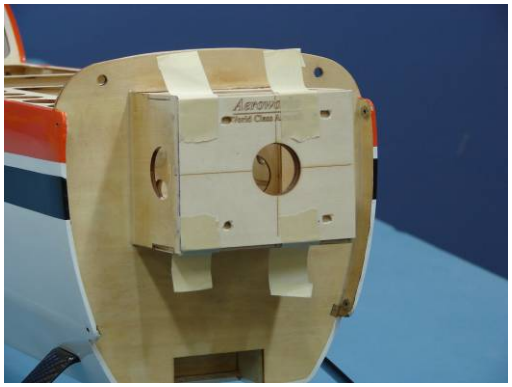
This step will help with the proper alignment of the template material during the cowl installation steps shown later in this manual



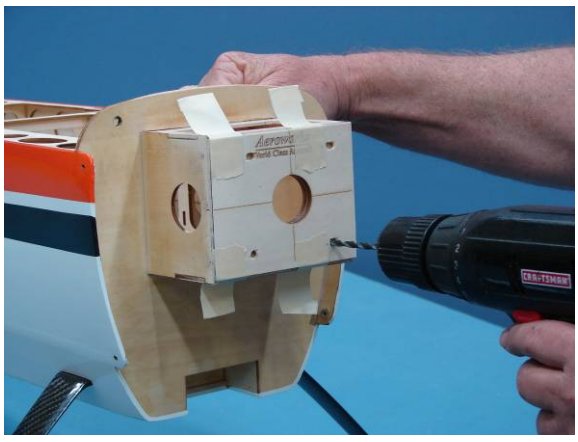
3. Locate the laser cut engine mounting template for the glow installation. If other engines are used the Universal template may be modified for any mounting pattern



4. Tape the engine mounting template to the firewall as shown.



5. Use a 1/4 drill bit to drill the engine mounting holes.

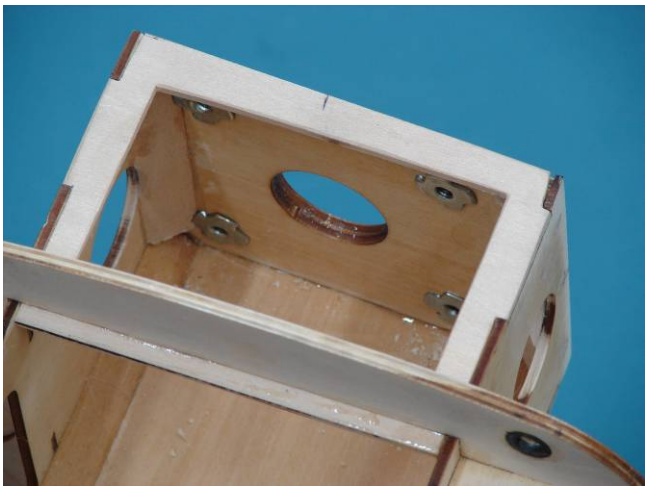


6. Use a 8-32 bolt along with a large fender washer to install the blind nuts as shown below.

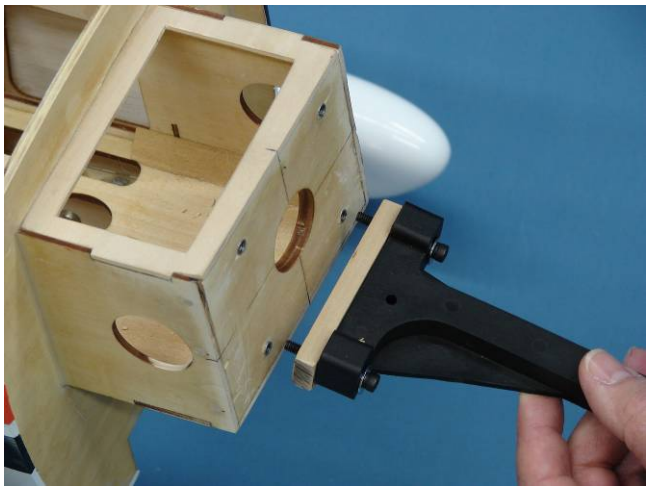
7. Tighten the bolt until the blind nut is fully seated in the firewall.

Note: Use thick CA to help secure the blind nut to the firewall.

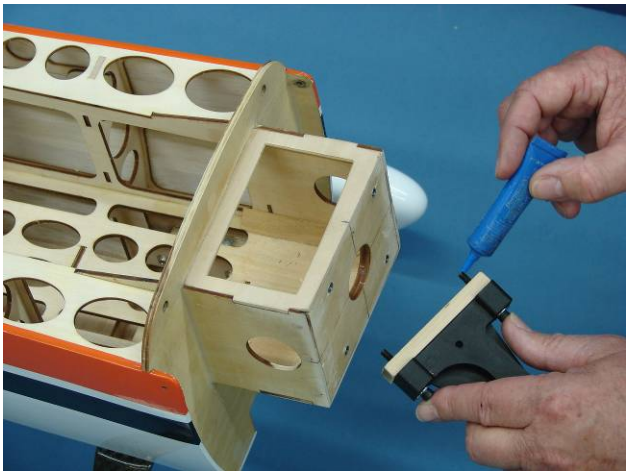
8. Repeat the above steps for the 3 remaining blind nuts.



9. Slide the plywood standoffs onto the motor mount mounting bolts as shown below. Align bolts with blind nuts installed

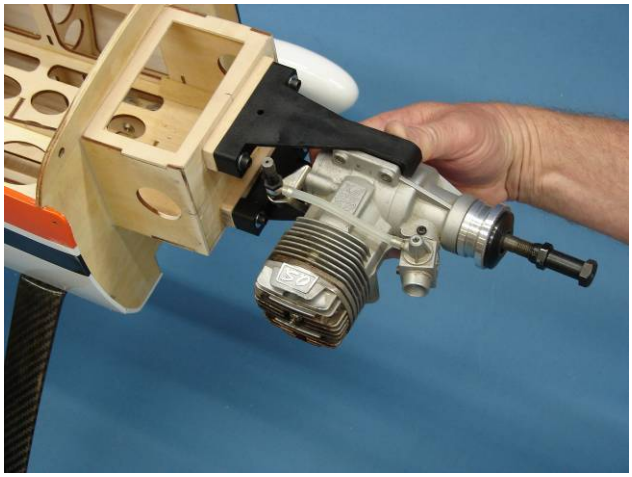


10. Use blue loctite to secure the engine mounting bolts in place. This will insure that the mounting bolts stay in place over time.



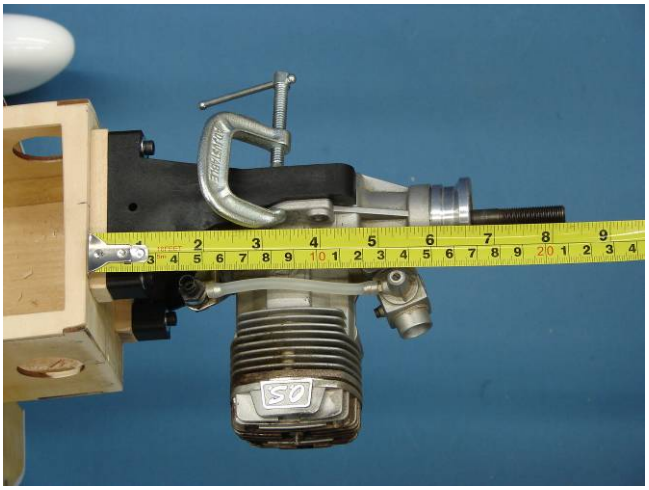
11. Using mounting bolts and flat washers mount engine mount to firewall. Tighten the bolts evenly to prevent crushing of the firewall.

12. Set the engine in between the left and right mounting rails. It will be necessary to clamp the motor in place for the next few steps.



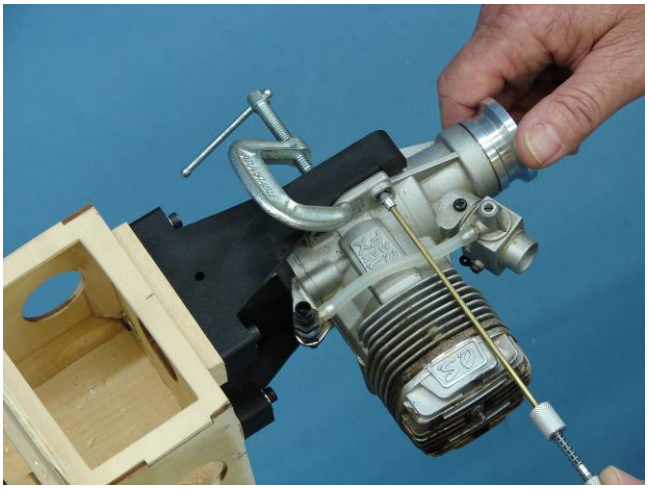
13. Adjust the engines position until the thrust washer is 6 1/2” away from the firewall.

Mounting Distance is: 6 1/2”



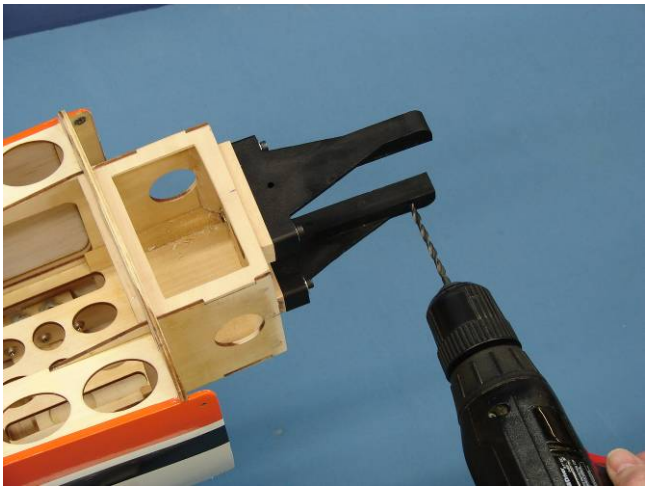
14. Mark the position of the engine mounting holes on the engine mount. Mark the center of each engine mounting hole with a center marking tool or beveled pencil or pen. Ensure the mark is in the center of the engine mounting hole.

Note: We recommend the Great Planes Dead Center Engine Mount Hole Locator **Part #GPMR8130**



15. Use a drill bit to drill the engine mounting holes into the engine mount.

Note: Drill the engine mounting holes as straight as possible. Use a drill press if available.

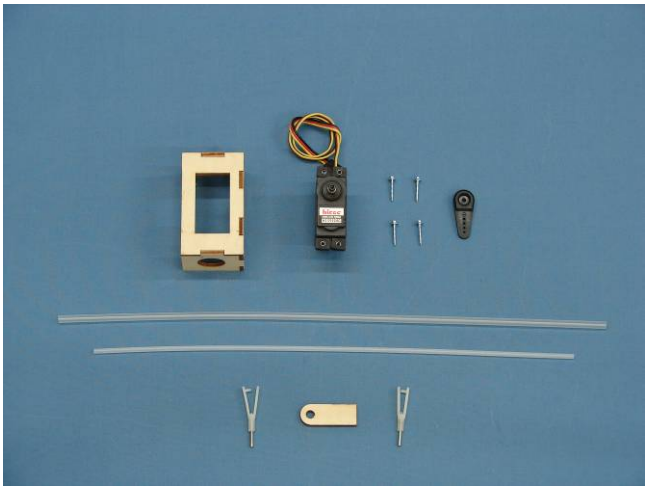


16. Using 4 8-32 mounting bolts, lock nuts, and washers, mount the motor to the mount as shown below.

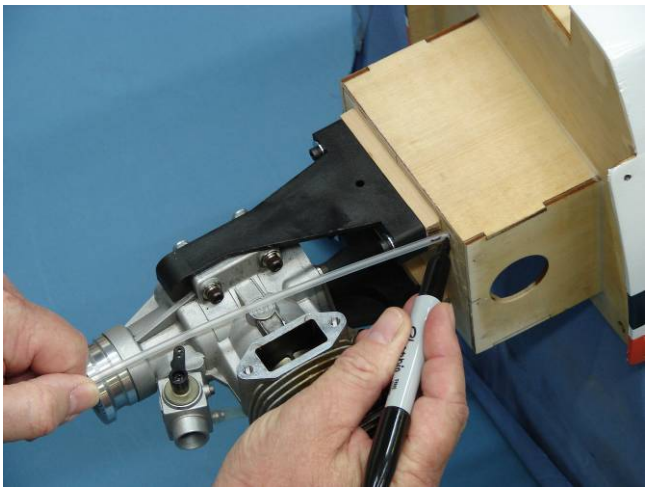
Throttle servo installation for 2 stroke engine

1. Gather the following items for the throttle servo installation.

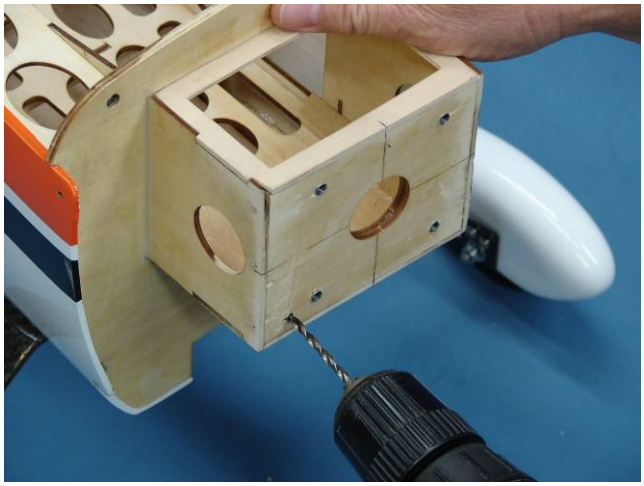
◊ 1 - Throttle servo
◊ 1 - Plywood pushrod guide
◊ 2 - Nylon clevises with threaded inserts
◊ 1 - Pushrod guide tube
◊ 1 - Throttle pushrod
◊ 1 - Mounting tray



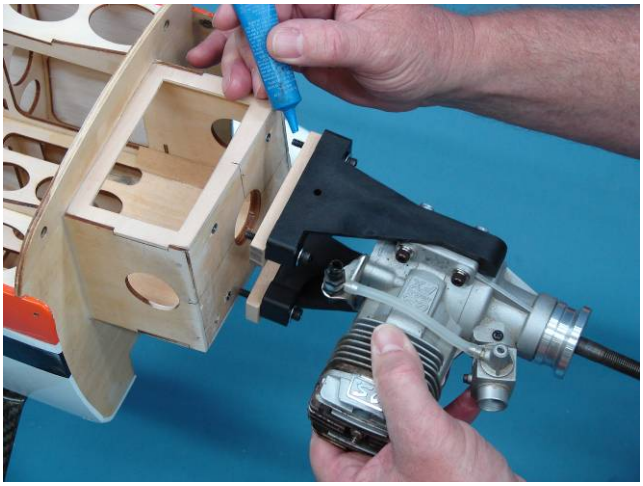
2. Mark the location of the throttle pushrod guide tube on the firewall as shown.



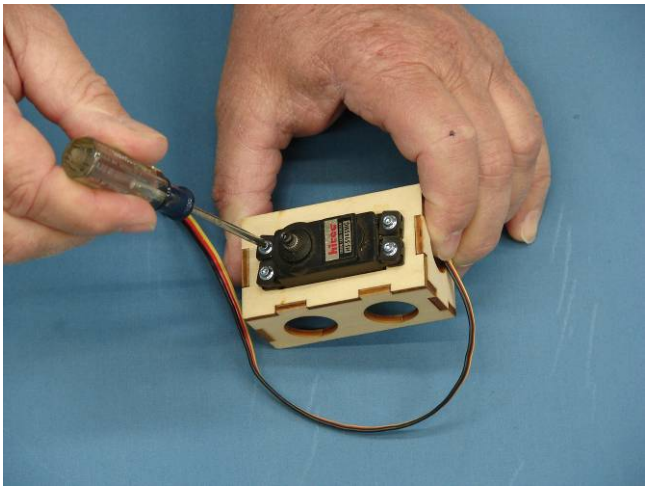
3. Remove the engine and use a drill bit to drill the holes for the throttle pushrod guide tube



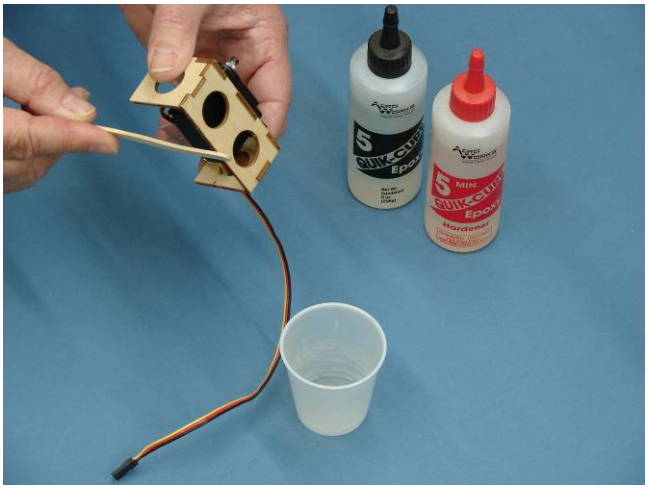
4. Use blue loctite to secure the engine mounting bolts in place. This will insure that the mounting bolts stay in place over time. Reinstall the motor using the 8-32 mounting bolts.



5. Install the throttle servo in the preassembled laser cut mounting tray as shown below.

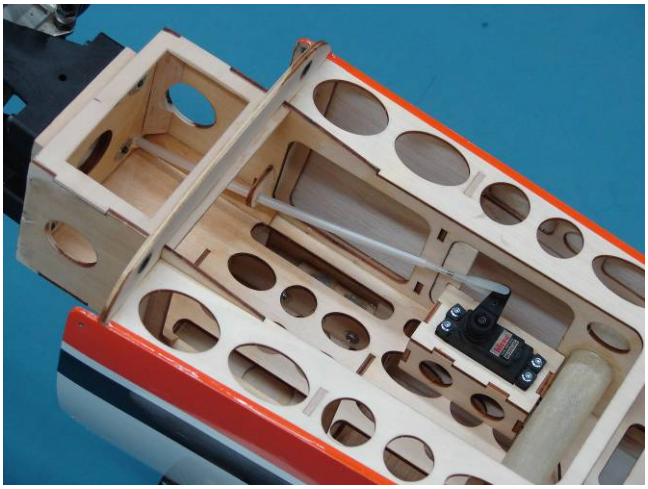


6. Apply 5 minute epoxy to the side of the servo mount that will be in contact with the engine box side.

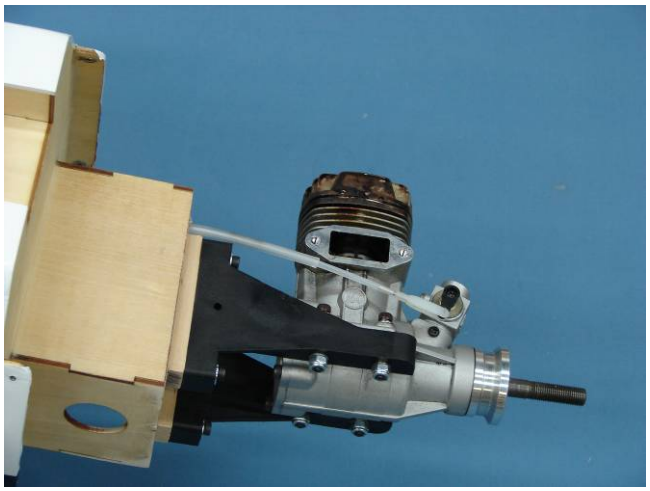


7. Install the servo mount to the inside of the engine box as shown. Use tape or clamps to ensure the servo mount does not move until the epoxy sets.

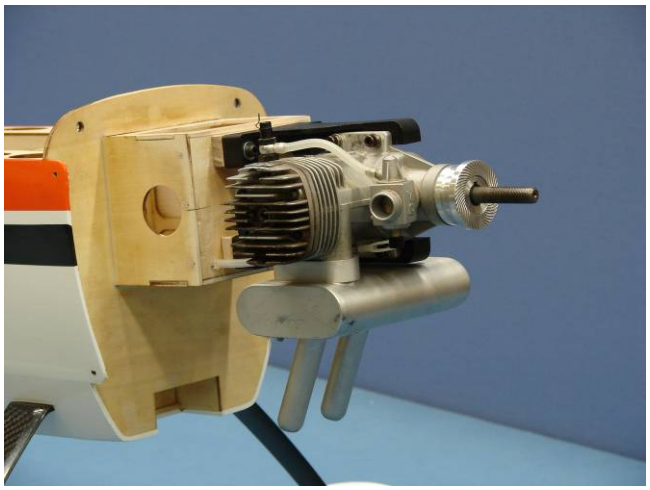
8. Connect throttle linkage to the servo as shown. Plywood supports have been provided to help keep the pushrod from flexing.



9. Attach the nylon clevis to the carburetor as shown. Use a piece of fuel tubing around the clevis to prevent it from coming undone in flight.



10. Install the pitts muffler at this time. 2 stroke engine installation is now complete.



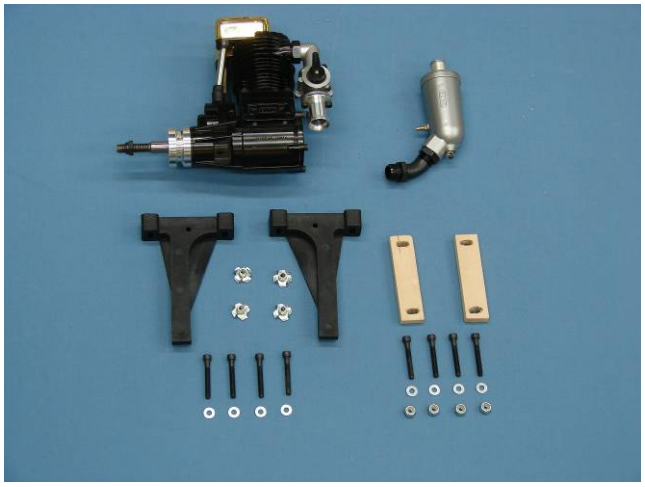
4 STROKE ENGINE INSTALLATION

Engine Installation

1. Gather the items shown below for engine installation.

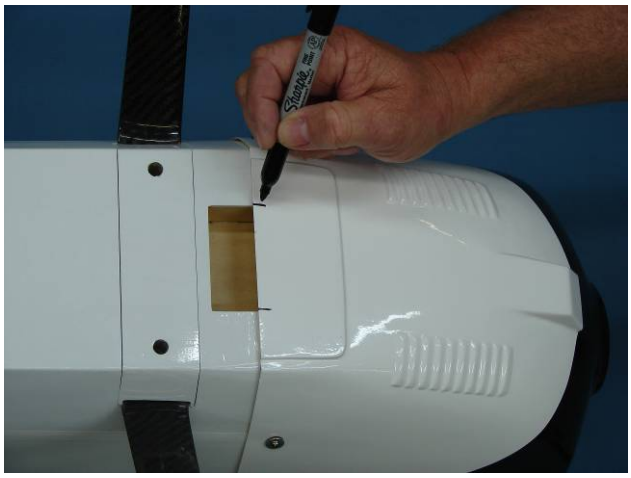
◊ Glow engine of your choice
◊ 8 - 8-32 bolts
◊ 2 - Plywood standoffs
◊ 8 - 3.5mm flat washers
◊ 4 - 8-32 lock nuts
◊ 4 - 8-32 Blind nuts
◊

Note: A Satio 1.80 4 stroke is shown depending on the choice of engine the installation may differ slightly.

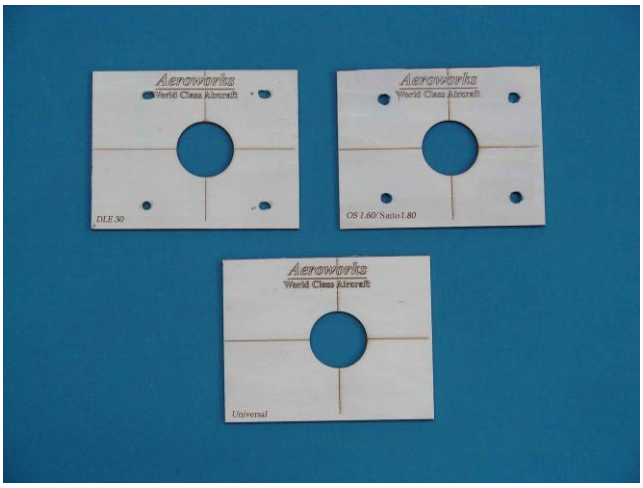


2. Align cowl to fuse and bolt in place. Mark the location of the air exit from the fuse onto the cowling.

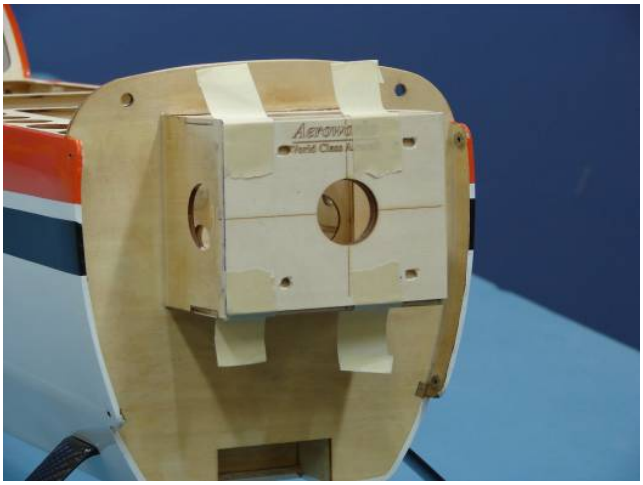
   This step will help with the proper alignment of the template material during the cowl installation steps shown later in this manual.



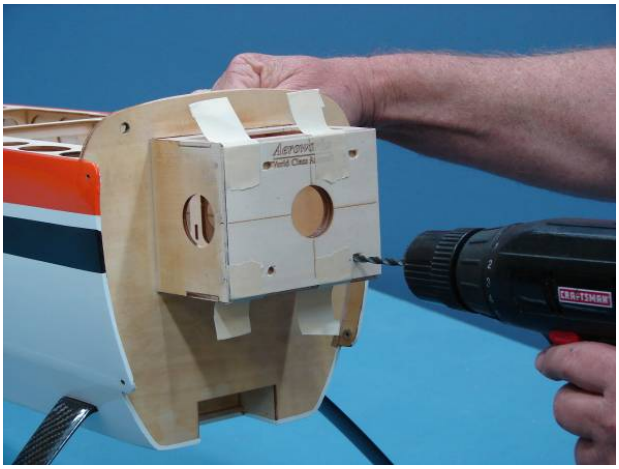
3. Locate the laser cut engine mounting template for the glow installation. If other engines are used the Universal template may be modified for any mounting pattern



4. Tape the engine mounting template to the firewall as shown.



5. Use a 1/4 drill bit to drill the engine mounting holes.

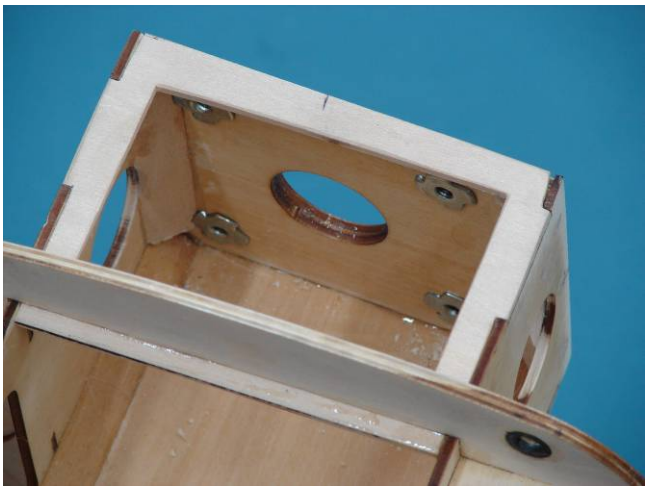


6. Use a 8-32 bolt along with a large fender washer to install the blind nuts as shown below.

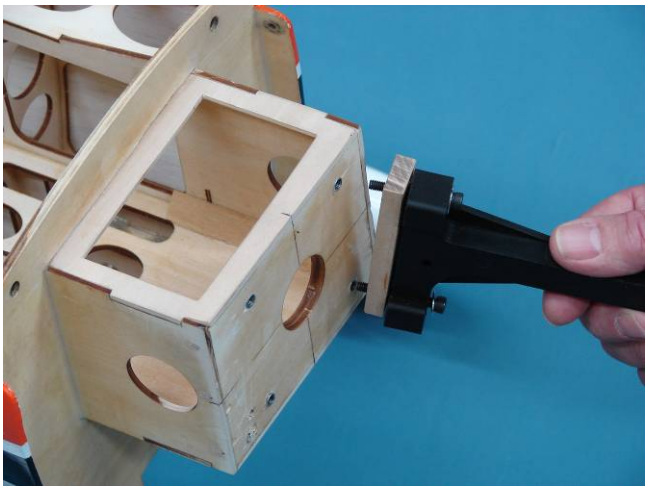
7. Tighten the bolt until the blind nut is fully seated in the firewall.

Note: Use thick CA to help secure the blind nut to the firewall.

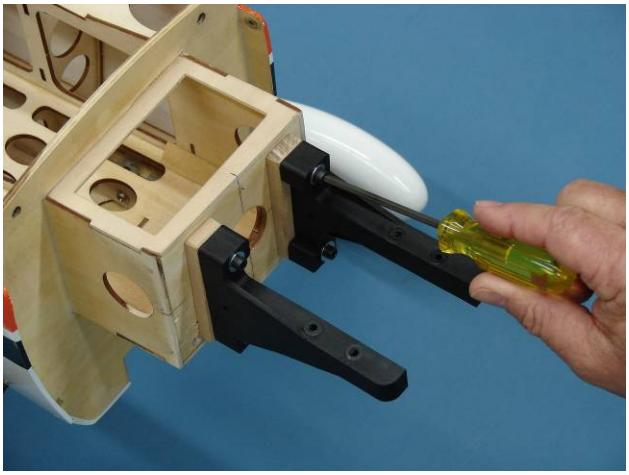
8. Repeat the above steps for the 3 remaining blind nuts.



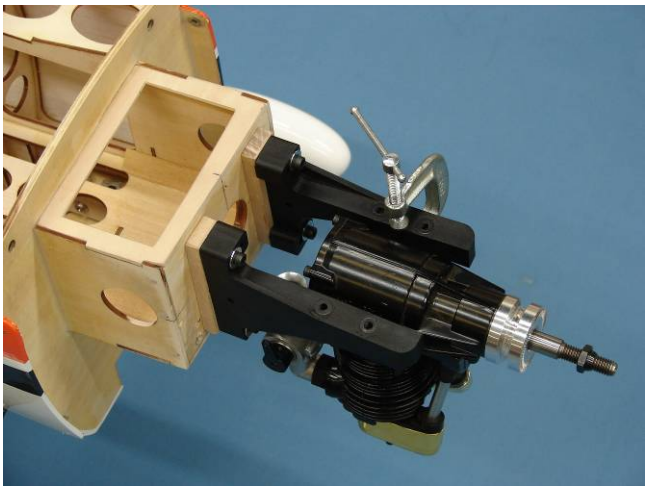
9. Slide the plywood standoffs onto the motor mount mounting bolts as shown below. Align bolts with blind nuts installed



10. Using mounting bolts and flat washers mount engine mounts to firewall. Tighten the bolts evenly to prevent crushing of the firewall.

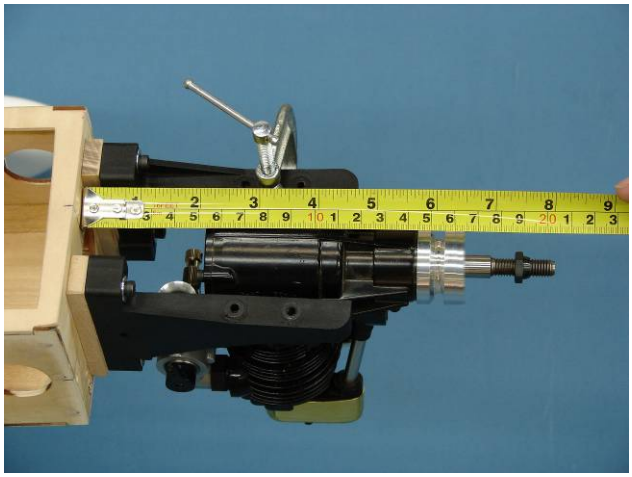


11. Set the engine in between the left and right mounting rails. It will be necessary to clamp the motor in place for the next few steps.



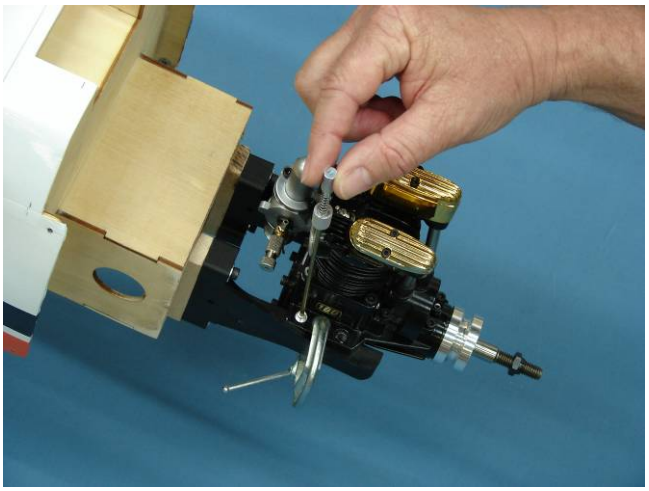
12. Adjust the motors position until the thrust washer is 6 1/2" away from the firewall.

Mounting Distance is: <u>6 1/2"</u>



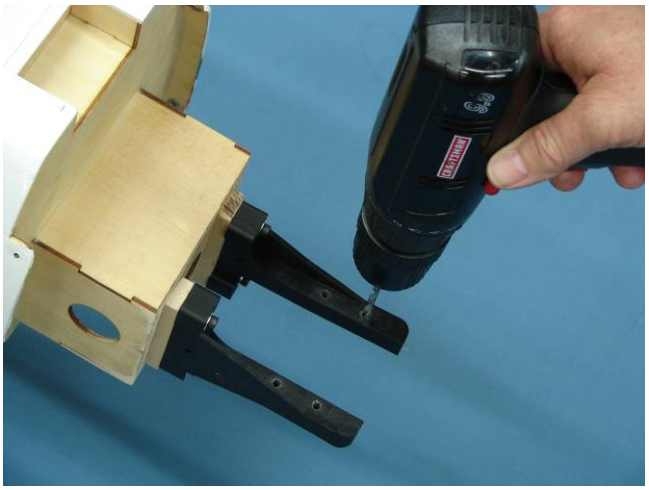
13. Mark the position of the engine mounting holes on the engine mount. Mark the center of each engine mounting hole with a center marking tool or beveled pencil or pen. Ensure the mark is in the center of the engine mounting hole.

Note: We recommend the Great Planes Dead Center Engine Mount Hole Locator **Part #GPMR8130**

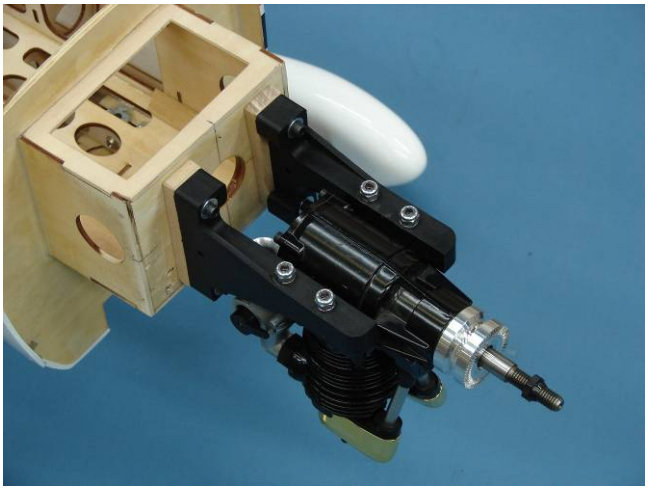


14. Use a drill bit to drill the engine mounting holes into the engine mount.

    Note: Drill the engine mounting holes as straight as possible. Use a drill press if available.



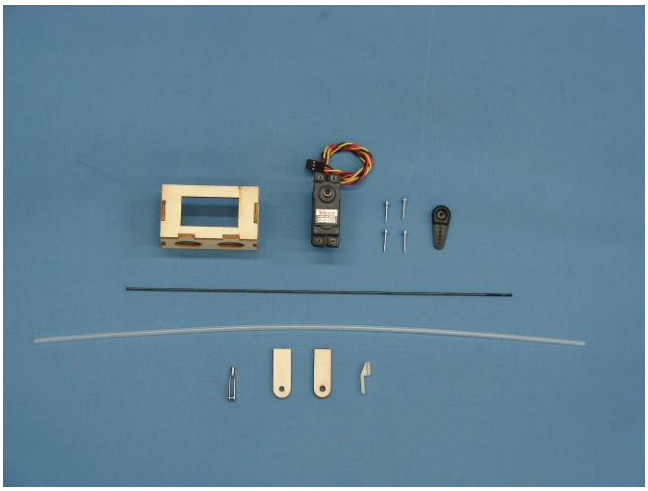
15. Using 4 8-32 mounting bolts, lock nuts, and washers, mount the motor to the mount as shown below.



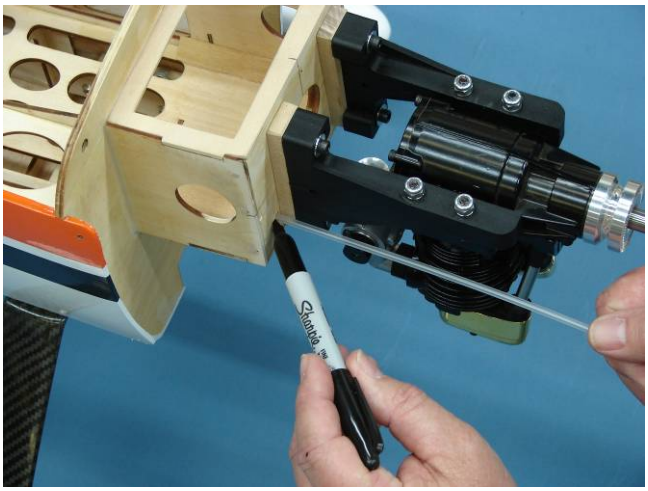
Throttle Servo Installation For 4 Stroke Engine

1. Gather the following items for the throttle servo installation.

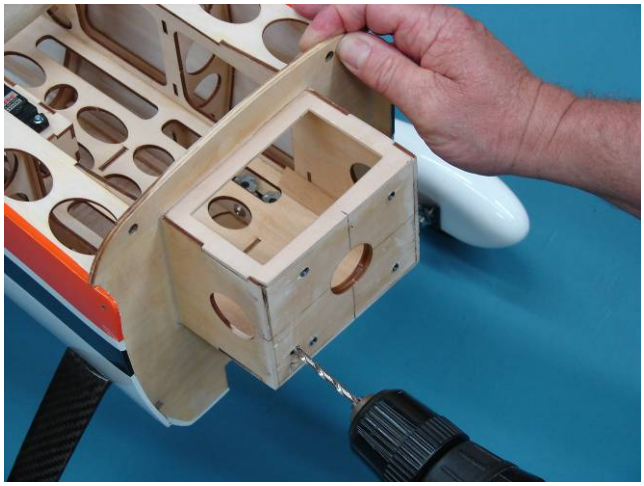
◊ 1 - Throttle servo with mounting screws
◊ 2 - Plywood pushrod guides
◊ 1 - Metal clevises
◊ 1 - Pushrod guide tube
◊ 1 - Throttle pushrod
◊ 1 - Servo Tray
◊ 1 - Plastic pushrod keeper



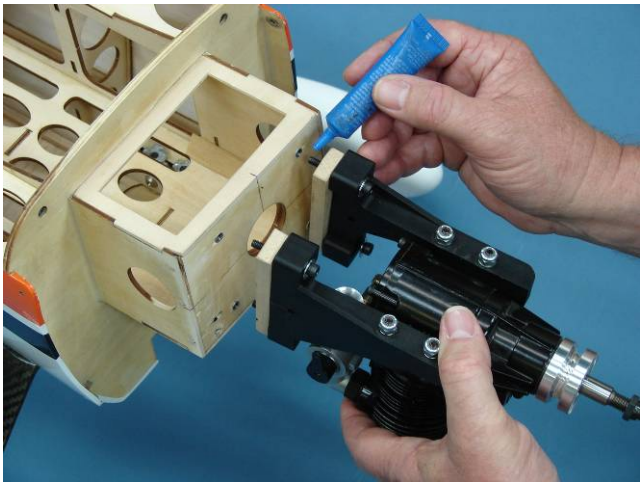
2. Mark the location of the throttle pushrod guide tube on the firewall as shown.



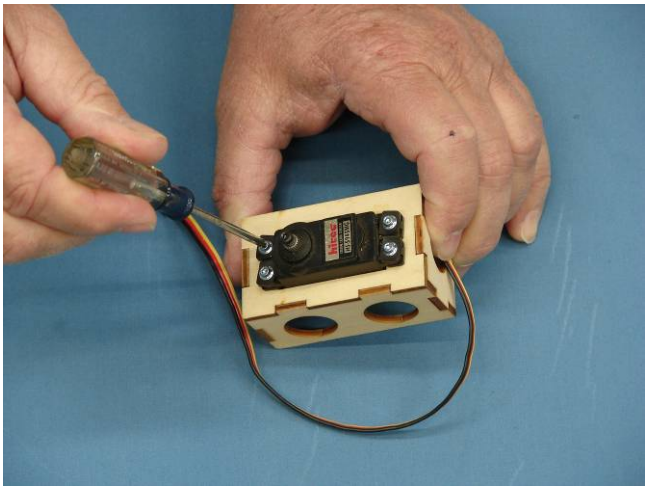
3. Remove the engine and use a drill bit to drill the holes for the throttle pushrod guide tube



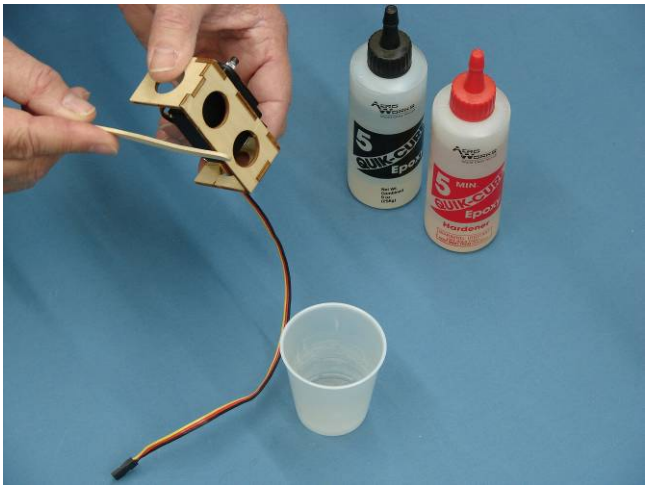
4. Use blue loctite to secure the engine mounting bolts in place. This will insure that the mounting bolts stay in place over time. Reinstall the motor using the 8-32 mounting bolts.



5. Install the throttle servo in the preassembled laser cut mounting tray as shown below.



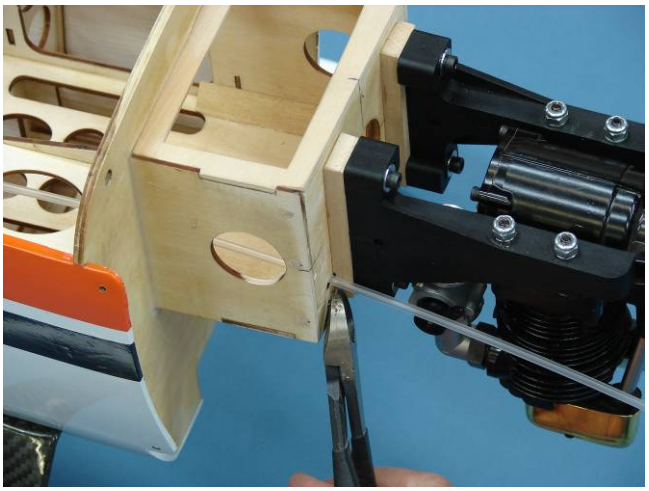
6. Apply 5 minute epoxy to the side of the servo mount that will be in contact with the engine box side.



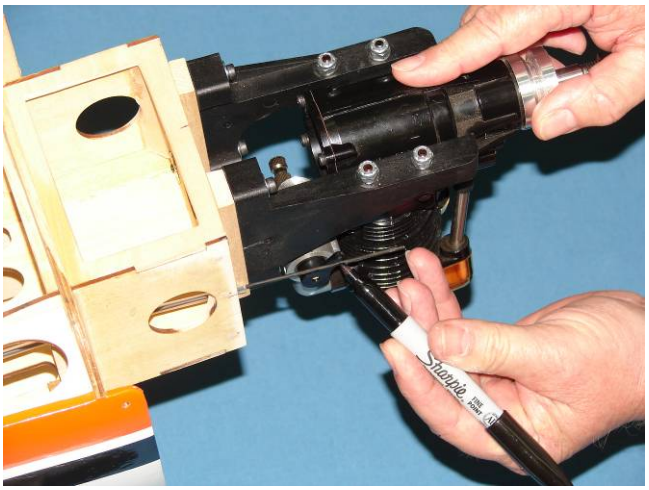
7. Install the servo mount to the inside of the engine box as shown. Use tape or clamps to ensure the servo mount does not move until the epoxy sets.

8. Connect throttle linkage to the servo as shown. Plywood supports have been provided to help keep the pushrod from flexing.

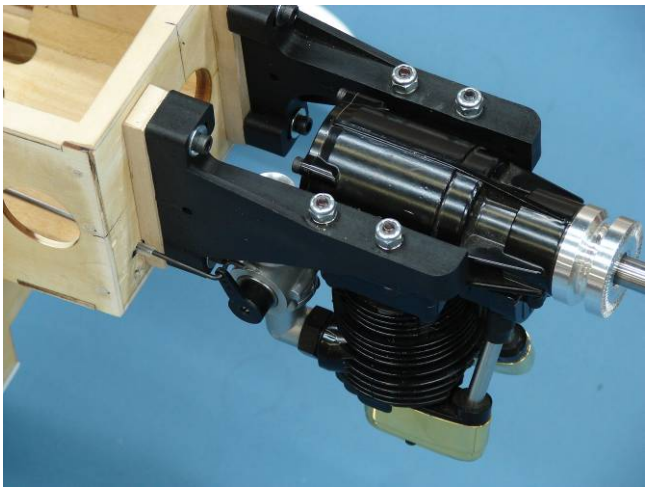
9. Use a pair of wire cutters to remove excess guide tube as shown below.



10. Mark the position where the Z-Bend will be located on the throttle pushrod as shown.



11. Create a Z-Bend in the throttle pushrod and install onto carburetor arm. 4 Stroke throttle installation is now complete.



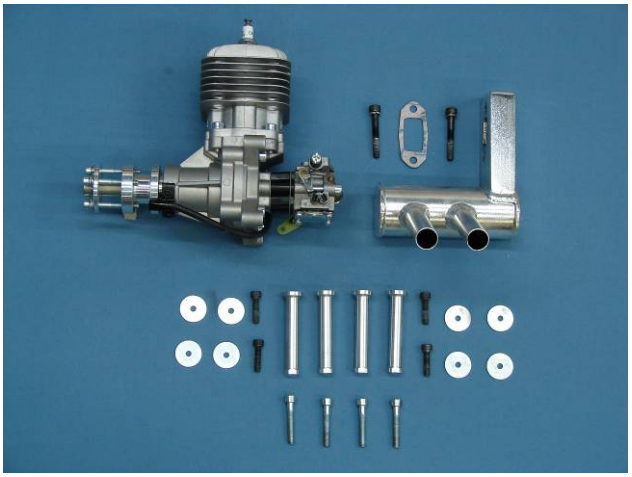
GAS ENGINE INSTALLATION

Engine Installation

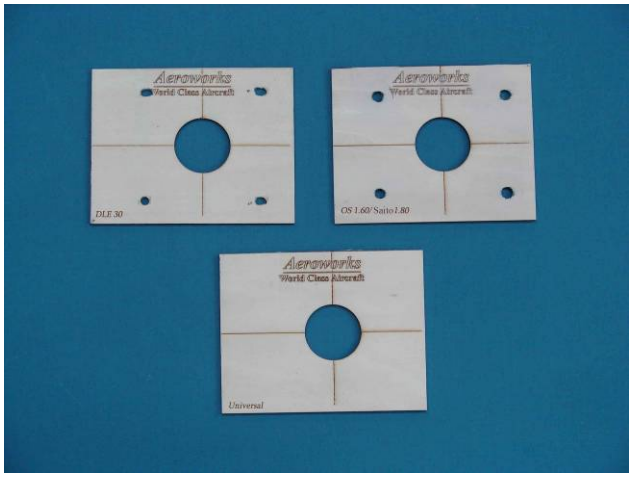
1. The 30cc Edge 540 will accept a wide range of engine types. The DLE-30 rear carburetor engine with Pitts style muffler, was mounted and used for the test flights.

Note: Mounting hardware is **Not Supplied**. stand offs available through DLE and should be supplied with your engine.

Mounting distance from front of firewall to front of engine prop hub: 6 1/2”



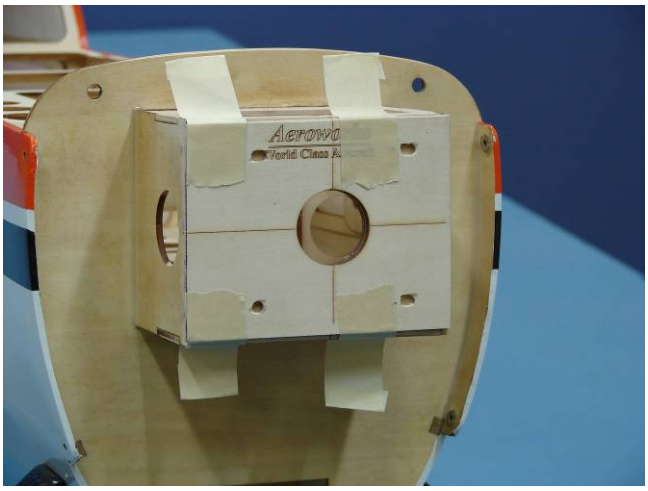
2. Locate the laser cut engine mounting template for the DLE-30. If other engines are used the Universal template may be modified for any mounting pattern



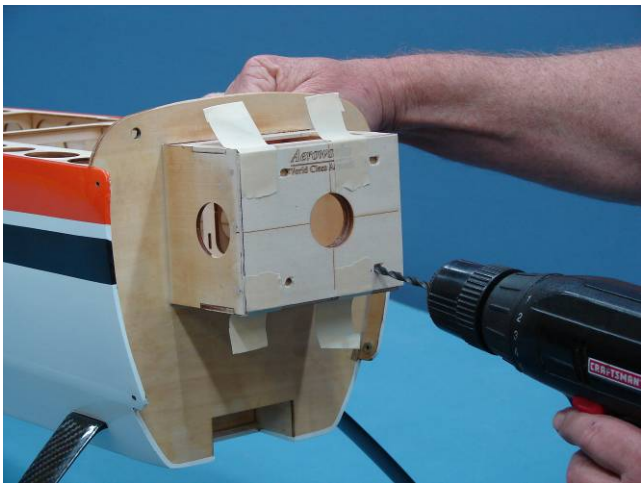
3. Align cowl to fuse and bolt in place. Mark the location of the air exit from the fuse onto the cowling.

   This step will help with the proper alignment of the template material during the cowl installation steps shown later in this manual

4. Align mounting template with firewall and tape in place.

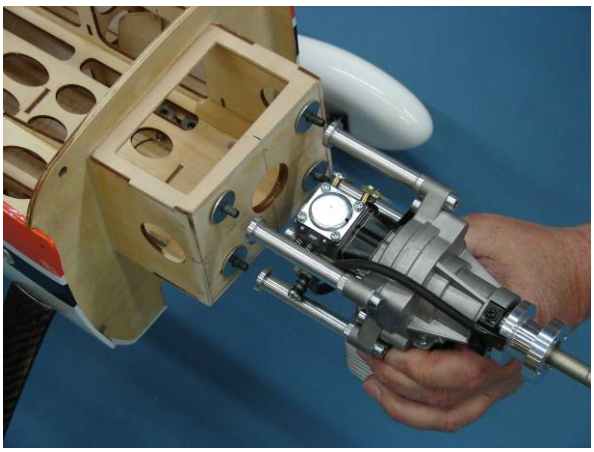


5. Use a 1/4 drill bit to drill the engine mounting holes.

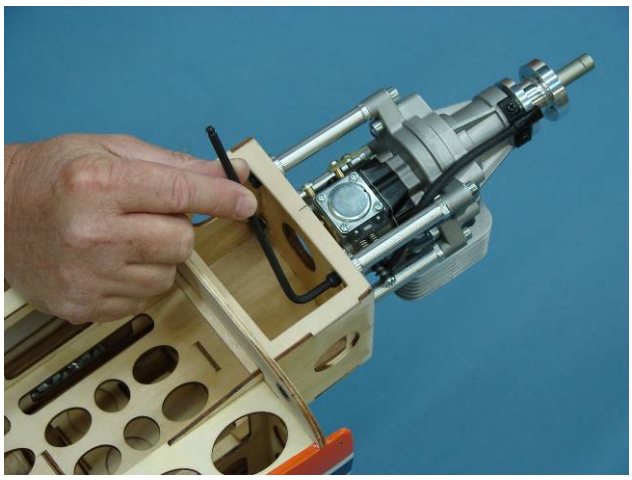


6. Using mounting bolts and flat fender washers mount engine to firewall.

7. Use blue loctite to secure the engine mounting bolts in place. This will insure that the mounting bolts stay in place over time.



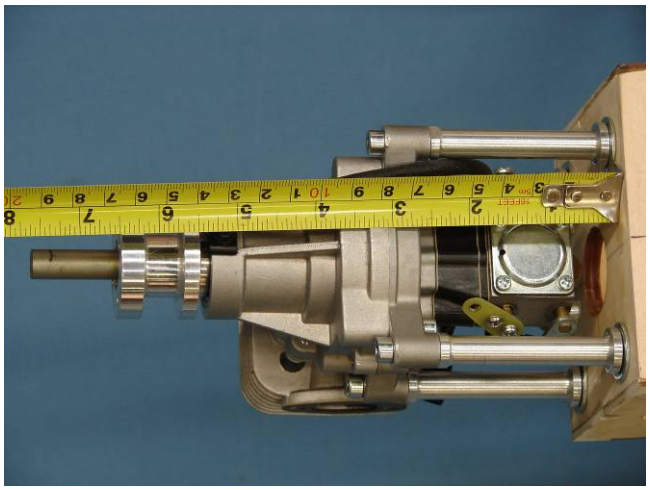
8. Tighten the bolts evenly to prevent crushing of the firewall.



9. Distance from front of firewall to front of engine prop hub is **6 1/2”**.

Note: Use aluminum stand offs (supplied with engine) and washers (not supplied) to achieve correct distance.

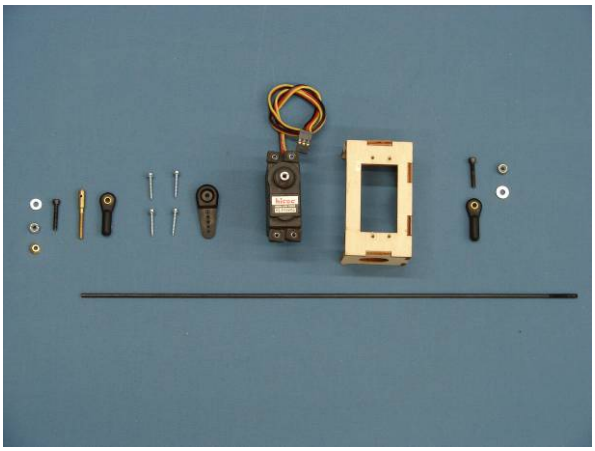
Mounting Distance is: 6 1/2”



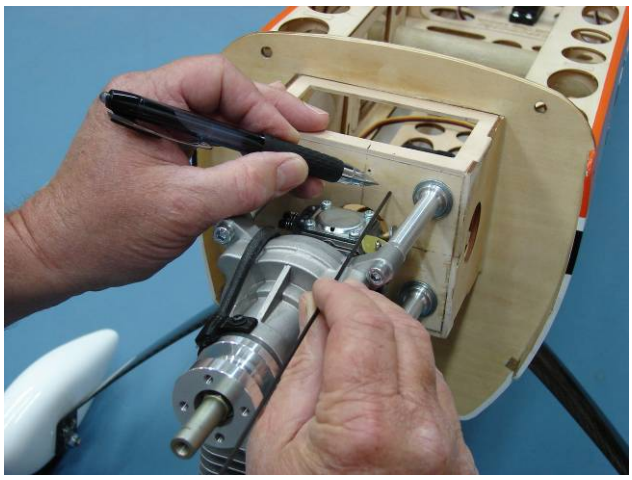
Throttle Servo and Choke Installation

1. Gather the following items for the throttle servo installation.

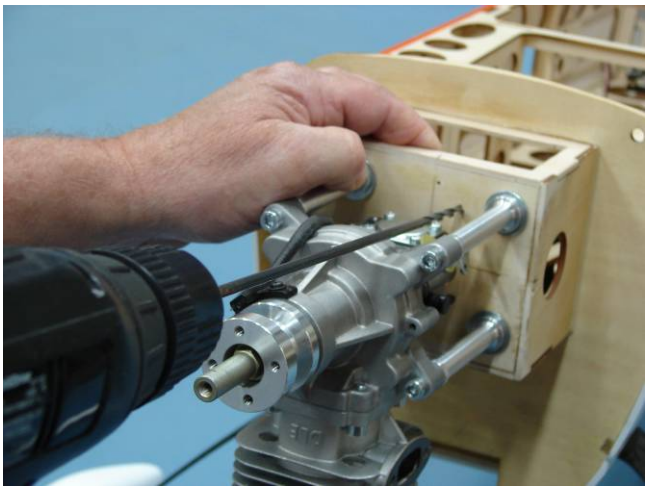
◊ 1 - Throttle servo with mounting screws
◊ 1 - 3/4” servo arm
◊ 1 - Servo mount
◊ 1 - 4-40 metal rod threaded at one end
◊ 2 - 4-40 ball link assemblies with hardware
◊ 1 - 4-40 brass threaded coupler



2. Mark the location of the throttle pushrod on the firewall as shown.

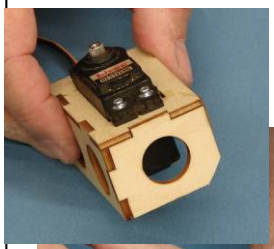


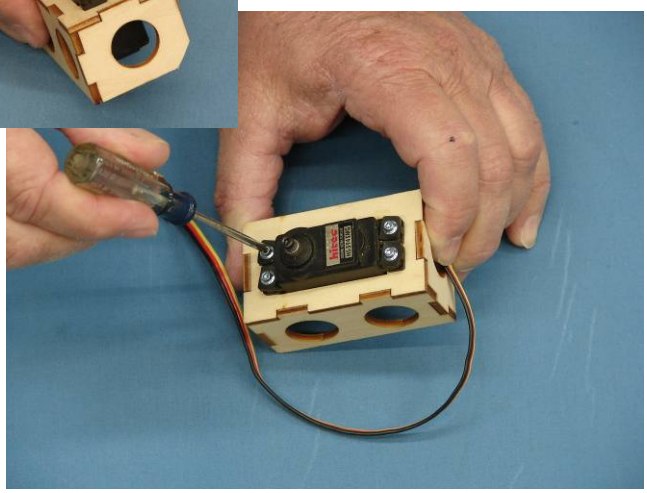
3. Use a drill bit to drill the holes for the throttle pushrod.



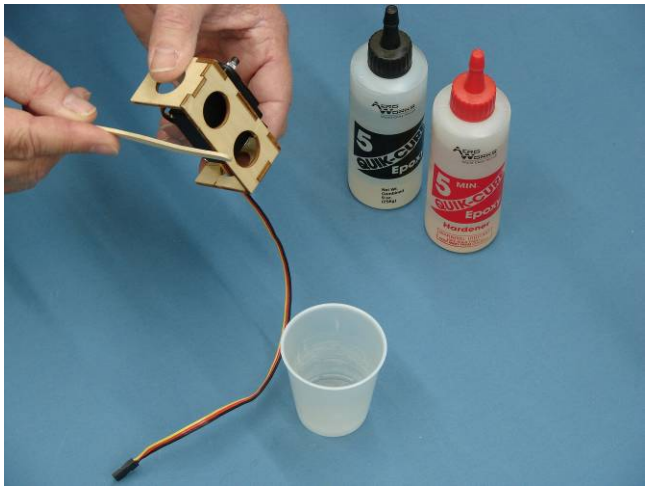
4. Install the throttle servo in the preassembled laser cut mounting tray as shown below.

Note: It may be necessary to remove the bottom corner of the servo mounting tray as shown. This will allow the mounting tray to fit over the reinforcement tri-stock.

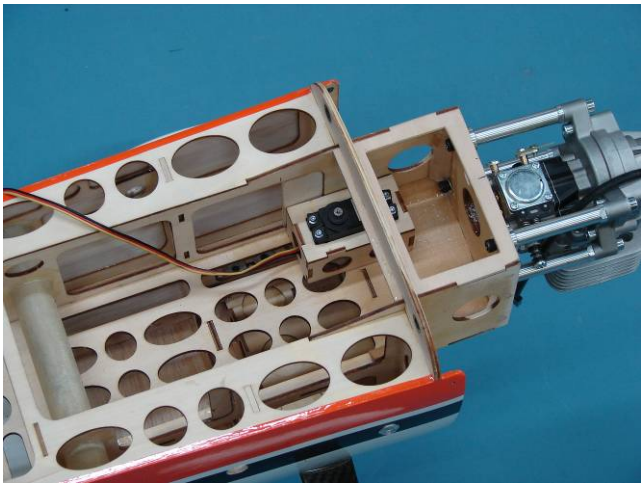




5. Apply 5 minute epoxy to the side of the servo mount that will be in contact with the engine box side.

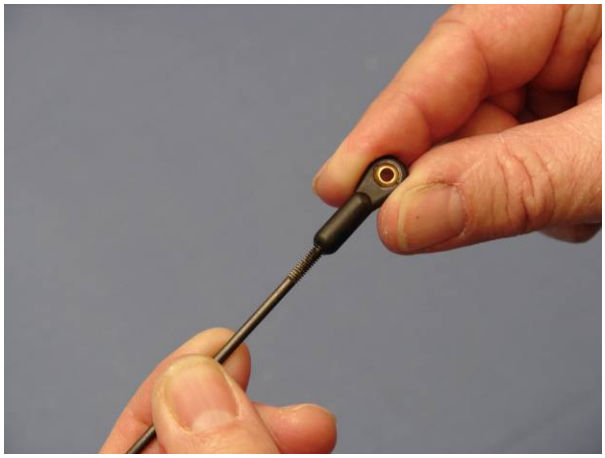


6. Install the servo mount to the inside of the engine box as shown. Use tape or clamps to ensure the servo mount does not move until the epoxy sets.

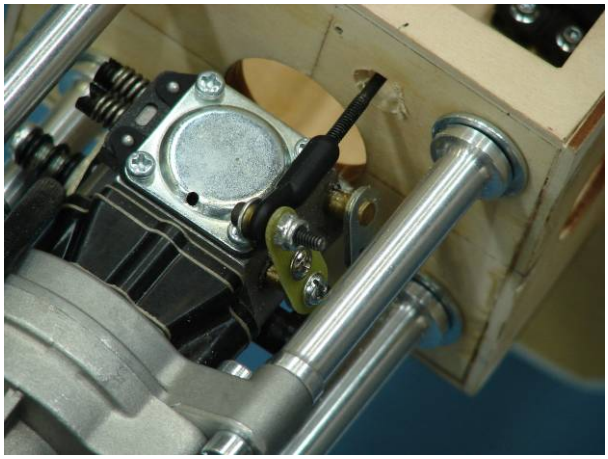


7. Assemble ball link to threaded end of pushrod.

Note: Thread ball link half way onto pushrod to allow for proper adjustment during final installation.

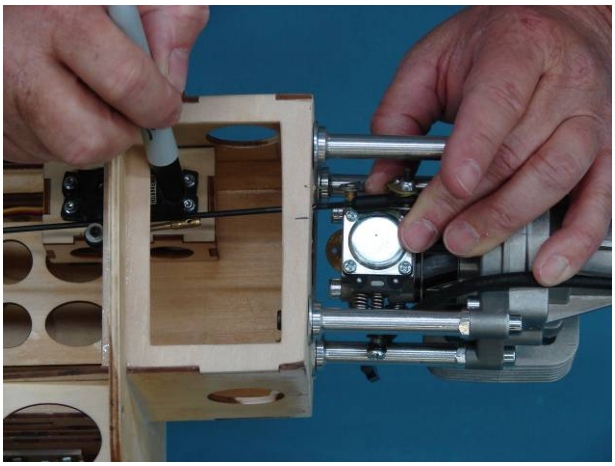


8. Attach throttle pushrod to the carburetor throttle arm with the 4/40 ball link

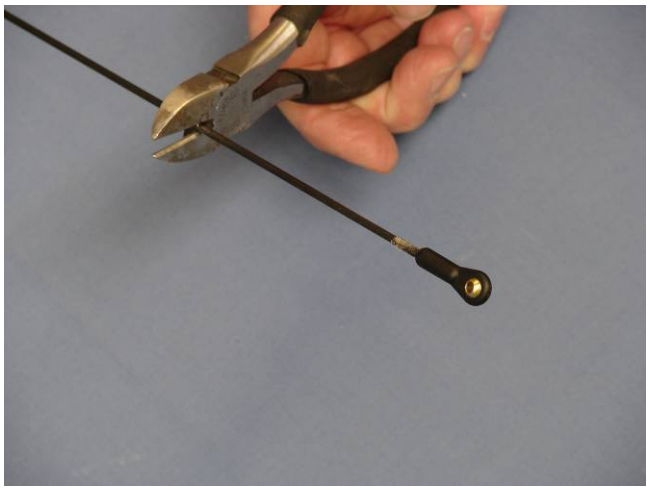


9. Assemble brass threaded coupler to 4-40 ball link and ball link and brass spacer to the servo arm as shown below.

10. With servo arm still 90 degrees to servo and throttle arm of carburetor in the center or half throttle position. Mark the cut location for the throttle push rod.



11. Remove pushrod from throttle arm on carburetor and cut throttle pushrod to length.



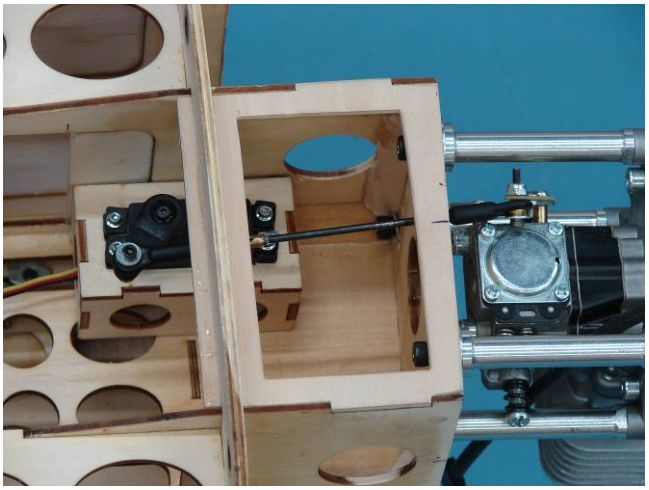
12. Gather the soldering tools as shown below.

Note: For best results we recommend a high quality Silver Solder like “Sta-Brite” silver solder.

13. Lightly sand end of pushrod for best bond.

14. Solder the threaded brass coupler to the end of the throttle pushrod.

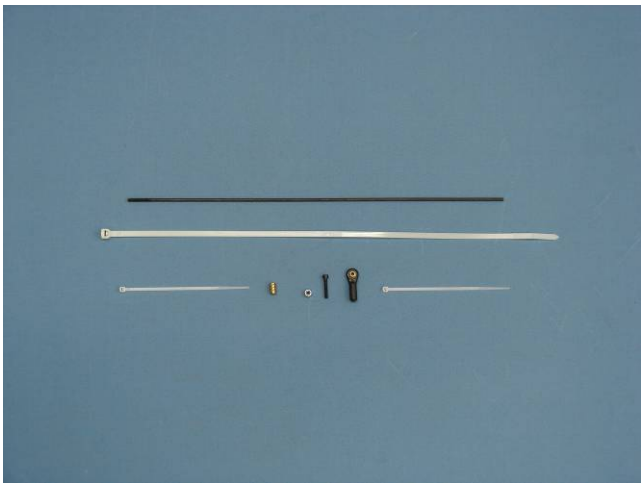
15. Attach the throttle pushrod with the 4/40 ball links and secure. Power up the receiver and throttle servo and adjust pushrod for proper operation. Ensure the servo or rod does not bind or jam at closed or full open positions.



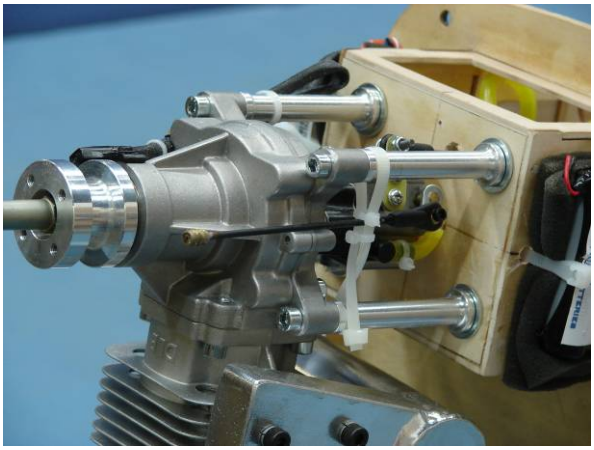
Choke Installation

1. Choke installation items shown below, items are not included.

◊ 1 - 4-40 metal rod threaded at one end
◊ 1 - 4-40 ball link assembly with hardware
◊ 1 - 4-40 Threaded insert
◊ 1 - Large Zip Tie
◊ 2 - Small Zip Ties



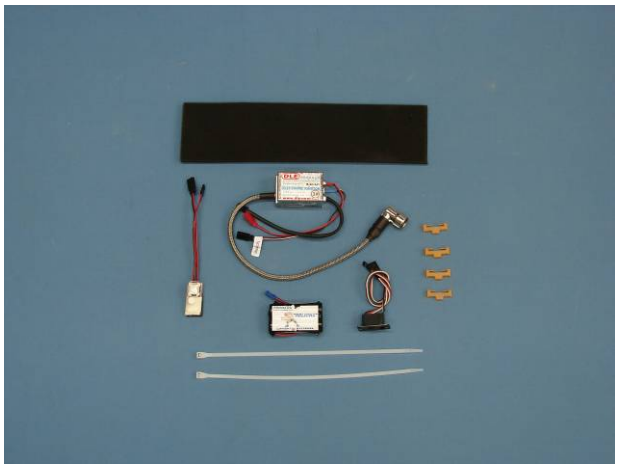
2. We recommend installing the carburetor choke pushrod as shown. Use nylon ties to provide support and holding friction for the choke pushrod. Place silicon fuel tubing over the wire pushrod to prevent damage from vibration and provide holding friction. Solder a threaded insert on the end of the pushrod to provide a finger grip.



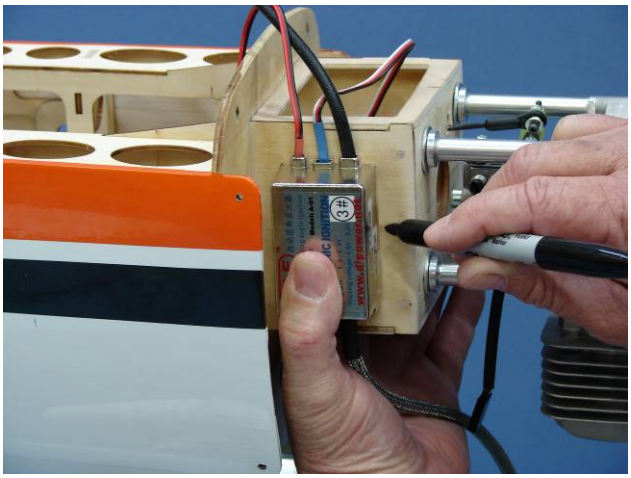
3. Location of manual choke pushrod shown below.

IGNITION INSTALLATION

1. Gather the ignition module, battery, switch, regulator and installation parts as shown below.



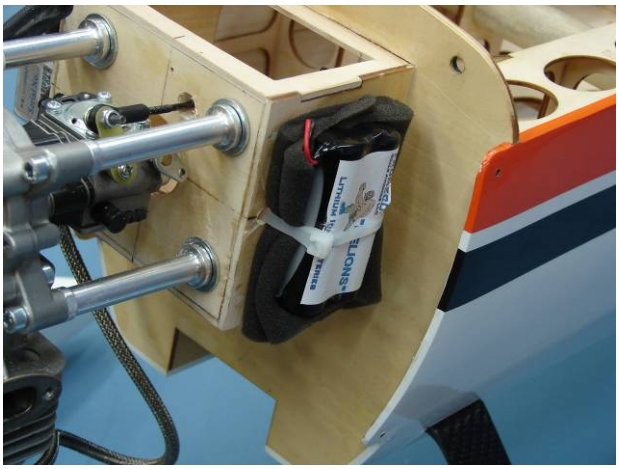
2. Position the ignition module on the side of the engine mounting box and mark the location of the nylon tie holes as shown.



3. Use a 1/4” bit to drill the ignition module mounting holes.

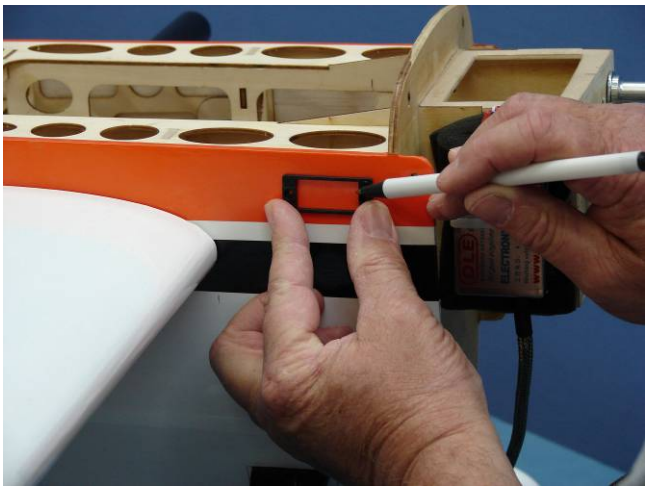
4. Mount the engine ignition module using nylon tie and foam rubber as shown.

5. Mount ignition battery on opposite engine box side with nylon tie and foam padding.



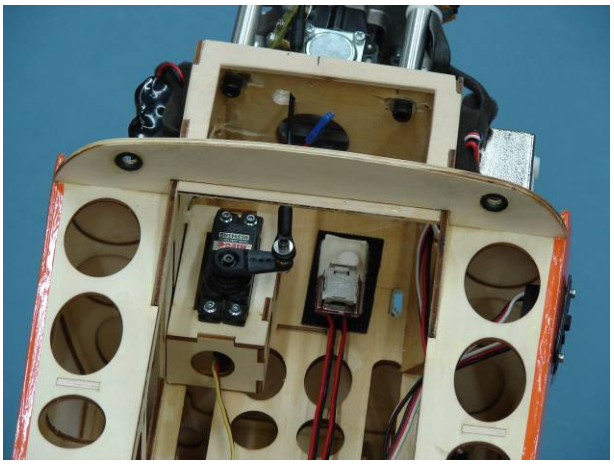
6. Switch mounting location is at builders discretion. Mark the location for the ignition switch using the switch mounting plate for a template. Using a modeling knife cut out the switch hole.

Note: Ensure switch location does not interfere with the mounting of the wing.



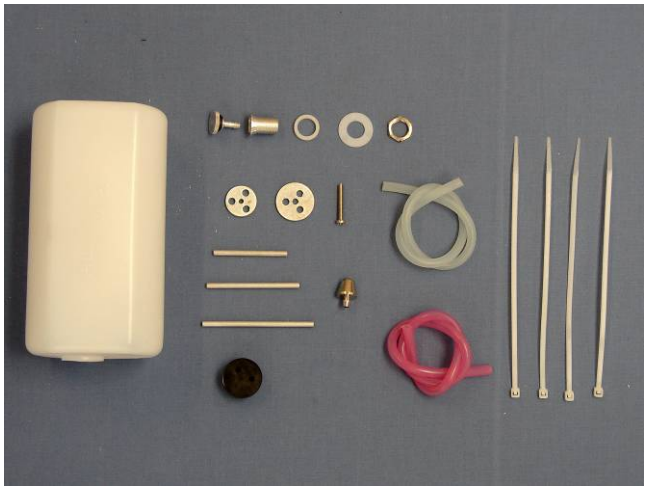
7. Mount switch in accordance with the switch manufacturers instructions and hardware.

8. Mount ignition regulator as desired. Secure all connectors with tape, safety clip or similar.



FUEL TANK ASSEMBLEY AND INSTALLATION FOR GLOW ENGINE

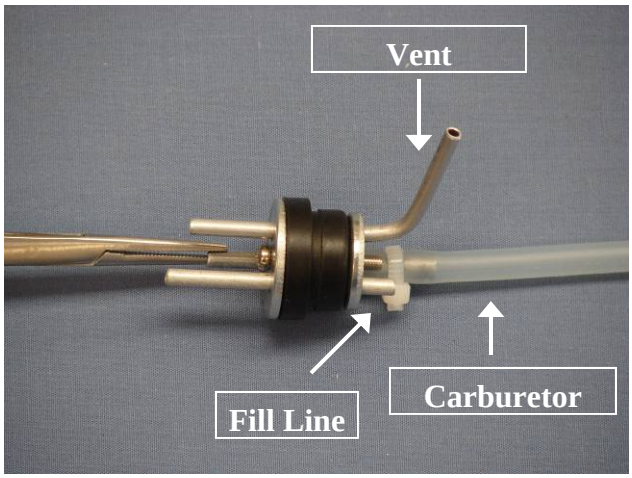
1. Gather the fuel tank parts as shown below. Fuel tank, hardware, and fuel tubing.



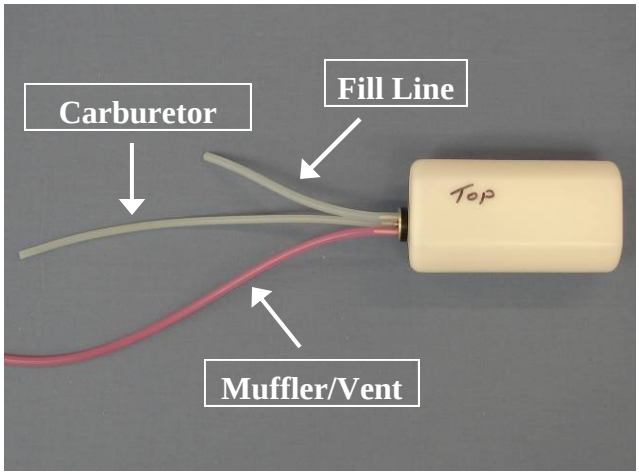
2. Assemble the stopper as shown below. Use Zip ties to secure the pick up line to the tubing as well as to the clunk.

3. Finished stopper shown below.

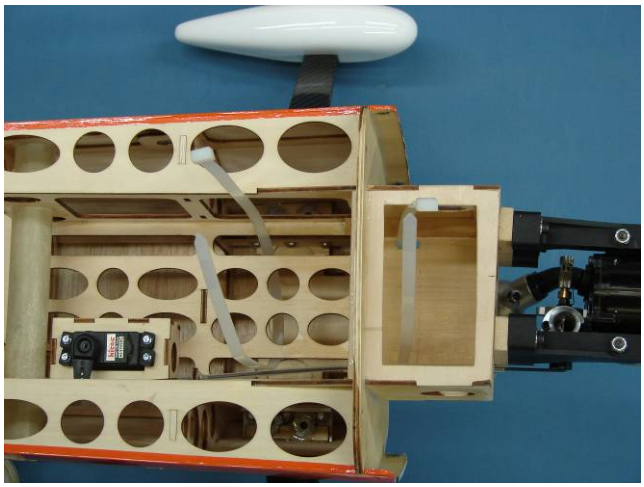
   Note: Fill line will also be used to defuel tank, lifting tail as high as possible will allow you to completely drain the tank.



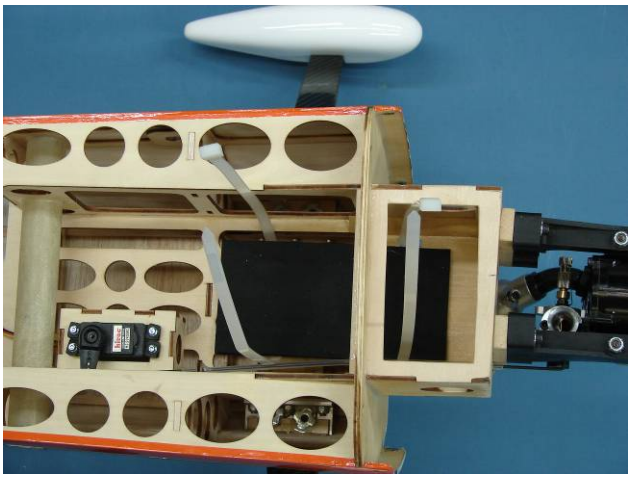
4. Install the supplied fuel line as shown below.



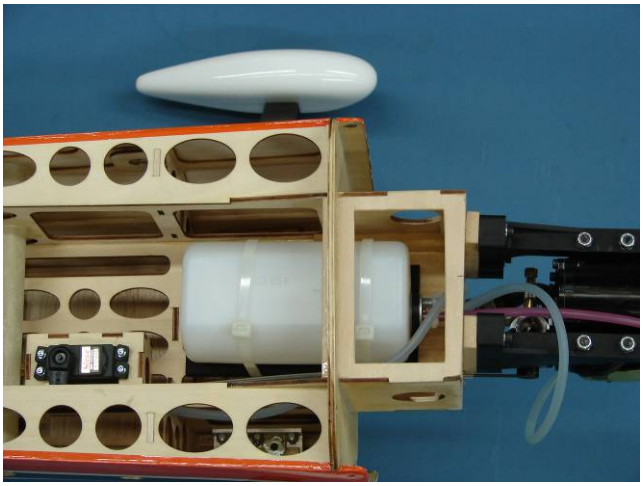
5. Thread nylon ties under tank mounting plate and center in position.



6. Install foam rubber pad for fuel tank to rest on. Foam rubber will help prevent fuel from foaming or getting air bubbles from engine vibration



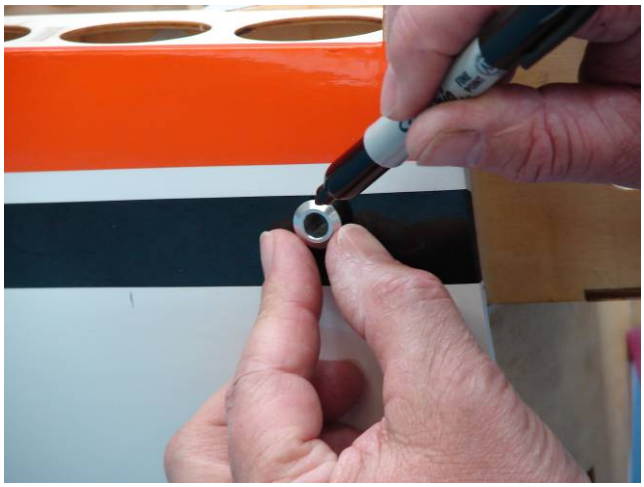
7. Install the tank. Run the fuel pick up line to the engine. Secure the tank with the two long nylon ties trim away any excess nylon tie as shown.



8. Gather the fuel filler dot and drill bits as shown below.

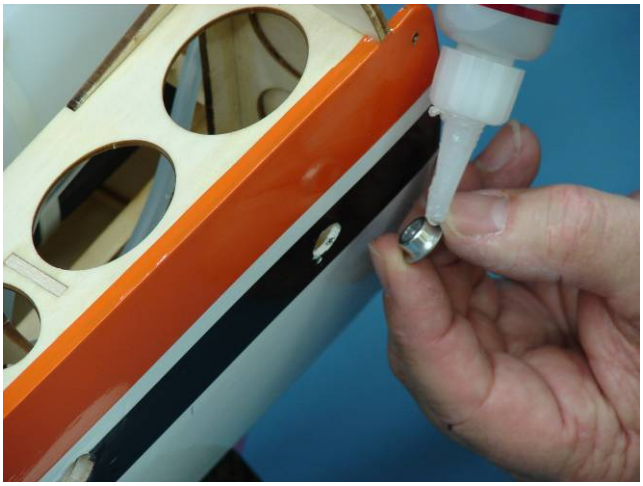
Note: We recommend you start with a smaller size drill bit then increase the bit size to the correct size to fit your filler dot. This will help prevent the fuse side from splitting or cracking.

9. Mark location of fuel filler dot.

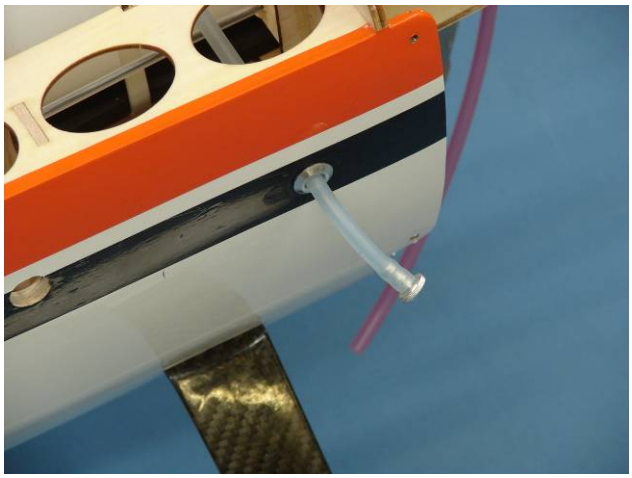


10. Drill hole to accommodate fuel filler dot.

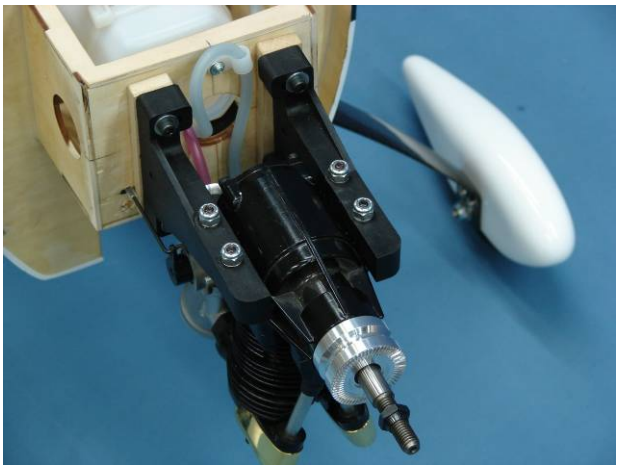
11. Use thick CA to secure fuel dot in fuse.



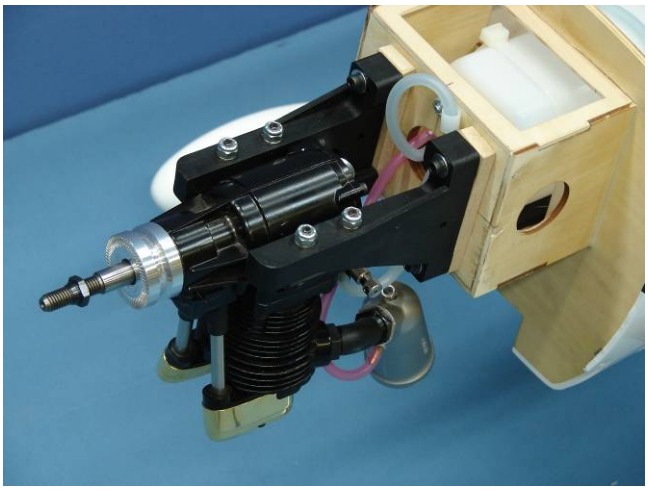
12. Feed filler line through dot and plug line into filler plug as shown.



13. For four stroke engines route fuel line above the carb inlet to keep the motor from flooding.



14. Secure fuel pick up line to engine carburetor with small nylon tie.

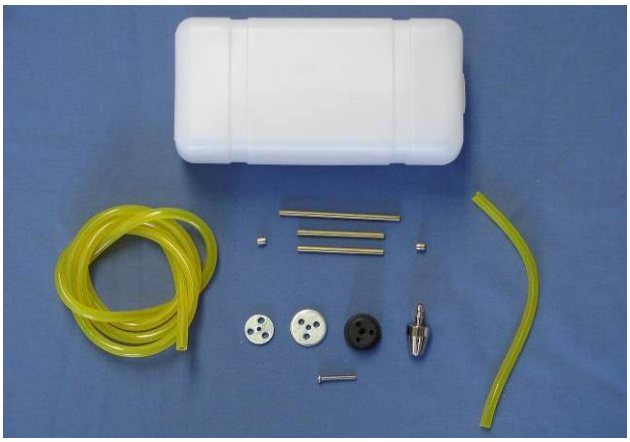


FUEL TANK ASSEMBLY AND INSTALLATION FOR GAS ENGINE

Fuel Tank Assembly

1. Gather the fuel tank parts as shown below.

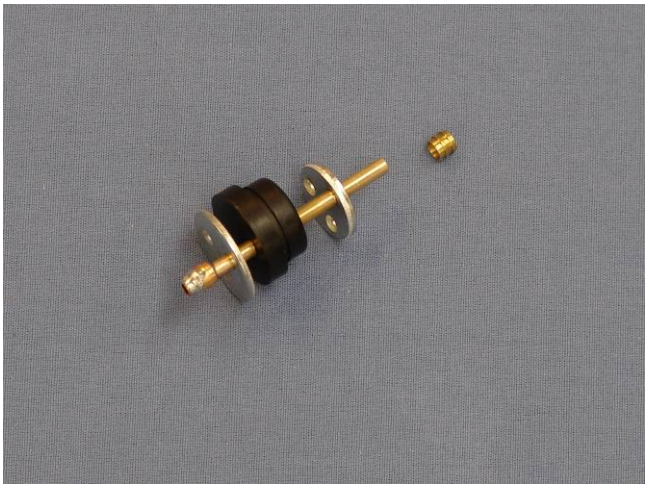
◊ 1 - 15oz fuel tank
◊ 1 - Fuel tank stopper
◊ 2 - Aluminum stopper mounts with screw
◊ 1 - Fuel clunk- Large
◊ 3 - Brass tubing- Large
◊ 2 - Fuel barbs
◊ 2’ - Large fuel tubing ***(Not Supplied)***
◊ 1 - Aeroworks fuel “T”***(Not Supplied)***



2. Locate the (2) supplied brass fuel barbs. Solder a brass fuel barb to the fuel line pick up tube. This will keep the weight of the fuel clunk from pulling the fuel line off the brass tube.

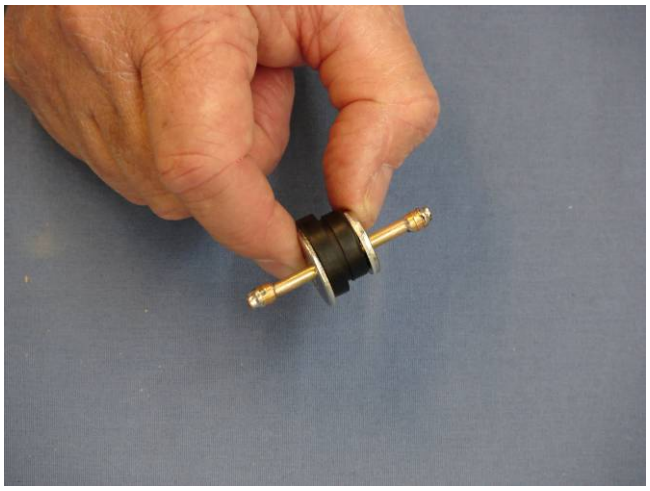
Note: No brass barbs are required for the air vent lines.

3. Assemble the fuel pick up line, rubber stopper and metal end caps. As shown below.



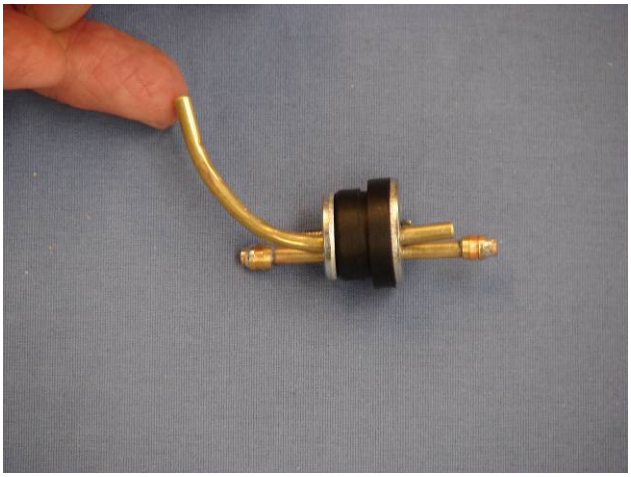
4. Solder a brass fuel barb to the other end of the fuel pick up line.

5. Final assembly of rubber fuel stopper with fuel pick up tube shown below.



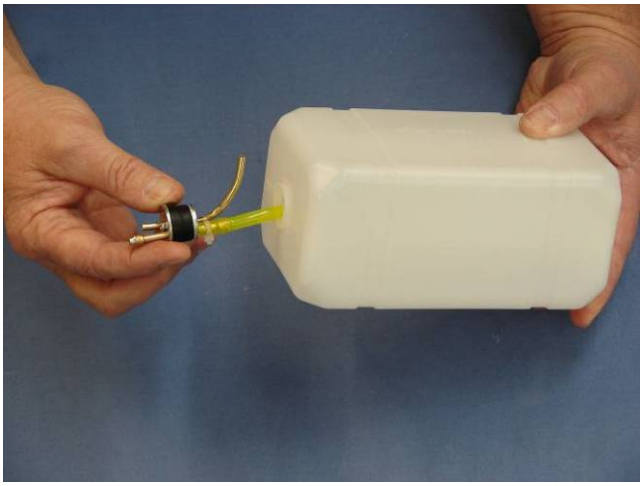
6. Install air vent tube into rubber stopper and bend upward.

Note: No brass barbs are required for the air vent tube.

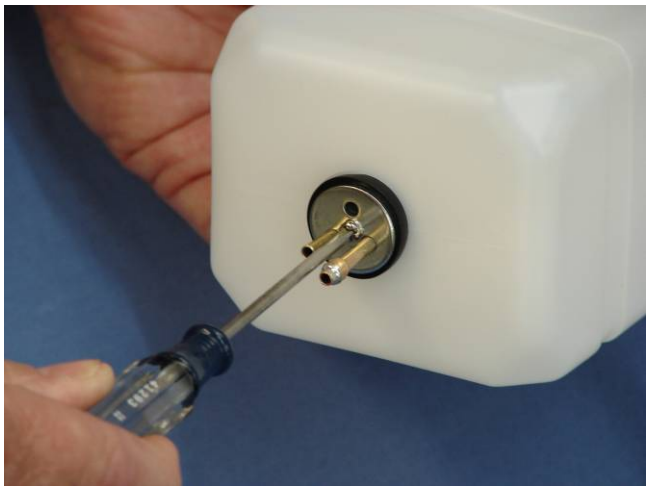


7. Install the fuel tubing and clunk. Secure the fuel tubing with nylon ties to the pick-up tube and clunk.

8. Insert the rubber stopper assembly into the tank with the vent tube at the top of the tank.



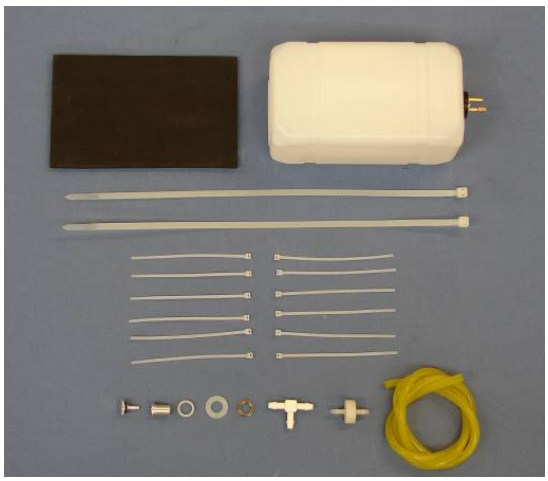
9. Secure the rubber stopper with set screw. Take care not to strip threads by over tightening set screw.



Fuel Tank Installation

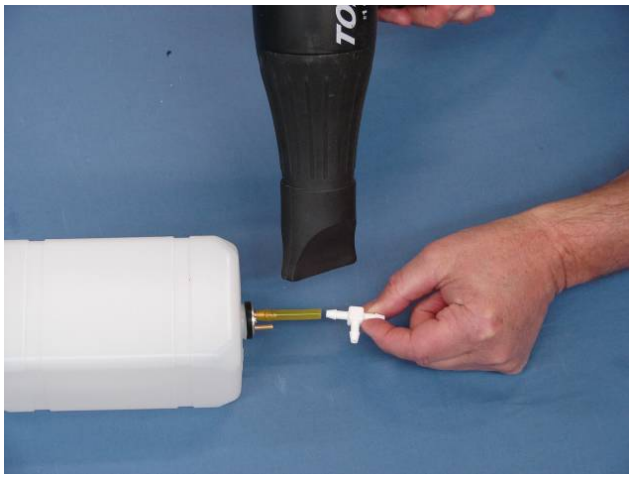
1. Gather the fuel tank parts as shown below. Fuel tank, fuel tubing, foam rubber, fuel "T", fuel filler dot, fuel filter and nylon ties.

Note: The fuel "T", and fuel filter are not supplied, but are available through Aeroworks.



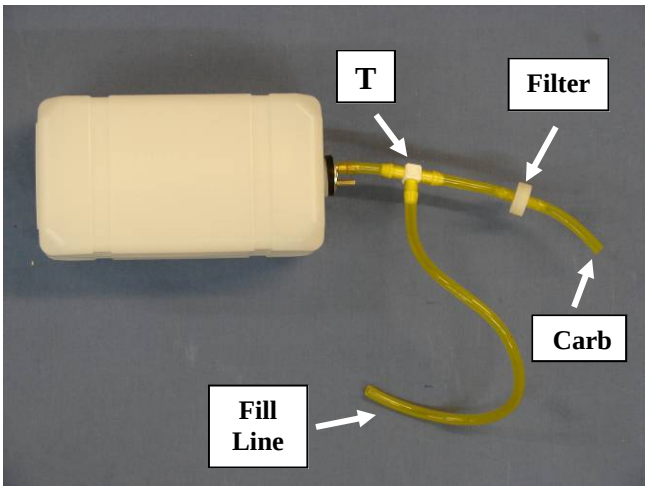
2. Install a short piece of fuel line and the fuel "T" to the fuel pick up tube.

Note: Using a heat gun to soften the fuel line will help with the installation of the fuel "T".



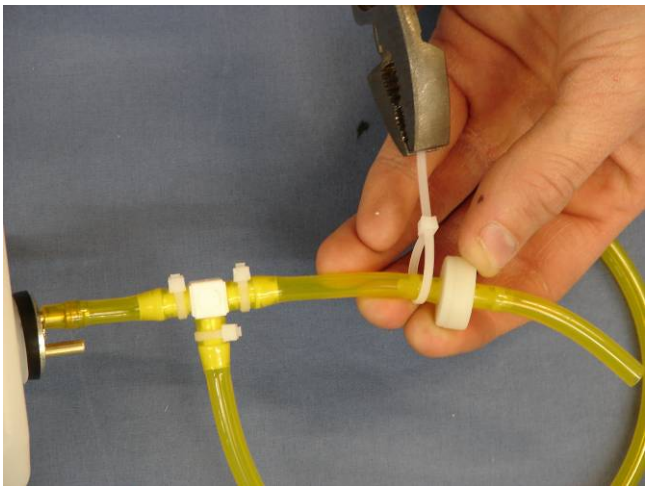
3. Install the fuel filter, fuel pick up and fuel filler lines to the fuel tank.

Note: It is recommended you always use a fuel filter in the fuel line to the carburetor.

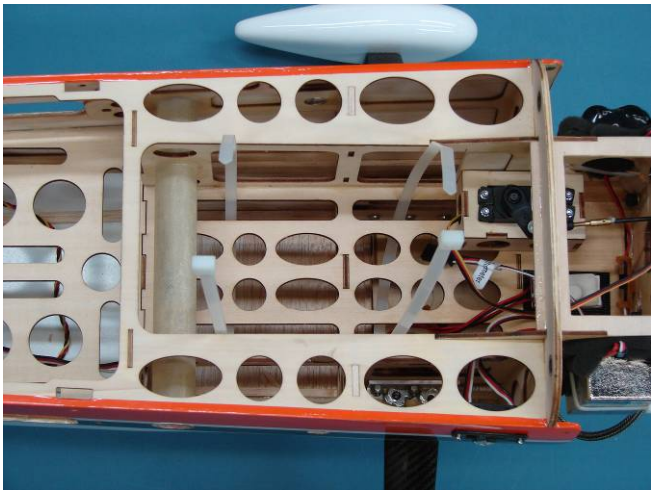


4. Use small nylon ties to secure fuel line.

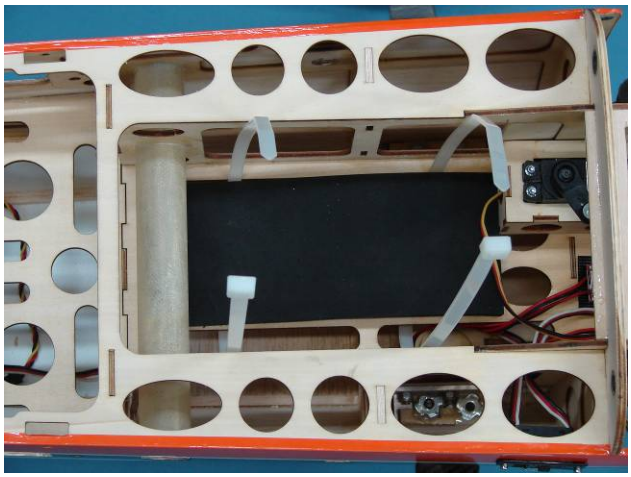
Note: Gasoline will cause the fuel line to expand over time. Always secure fuel lines with nylon ties to prevent them from pulling off during flight.



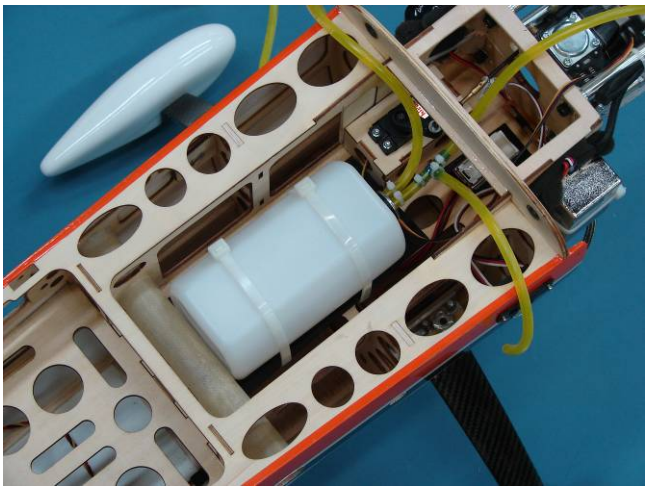
5. Thread nylon ties under tank mounting plate and center in position.



6. Install foam rubber pad for fuel tank to rest on. Foam rubber will help prevent fuel from foaming or getting air bubbles from engine vibration



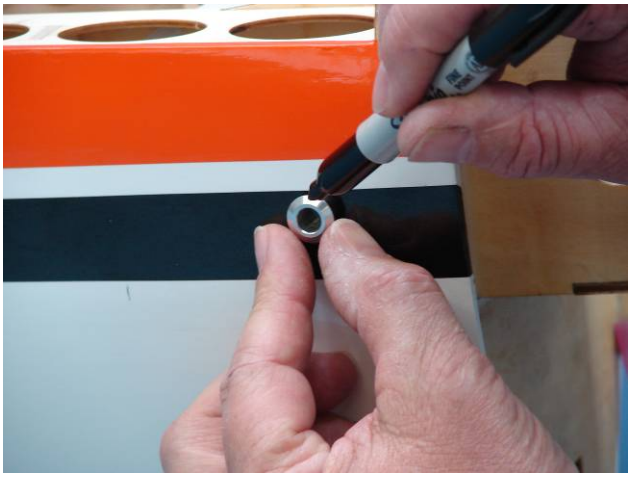
7. Install the tank. Run the fuel pick up line to the engine. Secure the tank with the two long nylon ties trim away any excess nylon tie as shown.



8. Gather the fuel filler dot and drill bits as shown below.

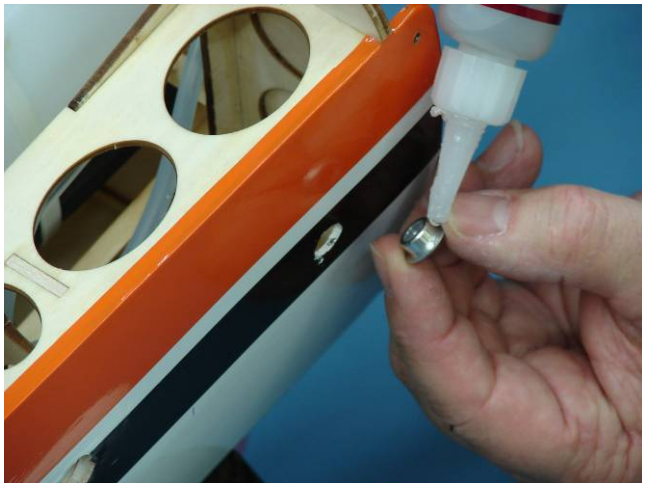
Note: We recommend you start with a smaller size drill bit then increase the bit size to the correct size to fit your filler dot. This will help prevent the fuse side from splitting or cracking.

9. Mark location of fuel filler dot.

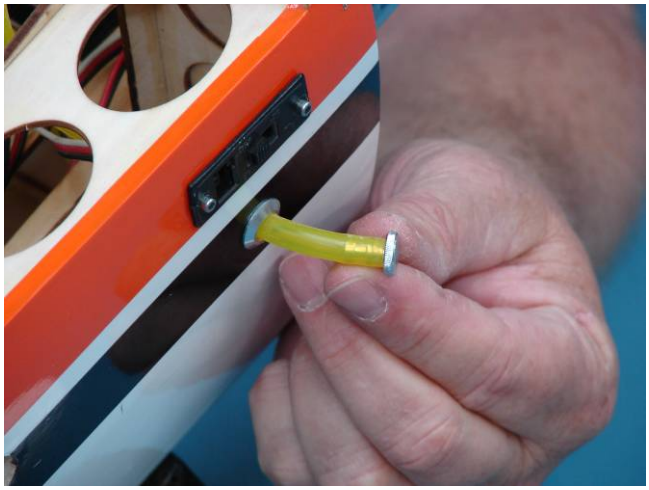


10. Drill hole to accommodate fuel filler dot.

11. Use thick CA to secure fuel dot in fuse.



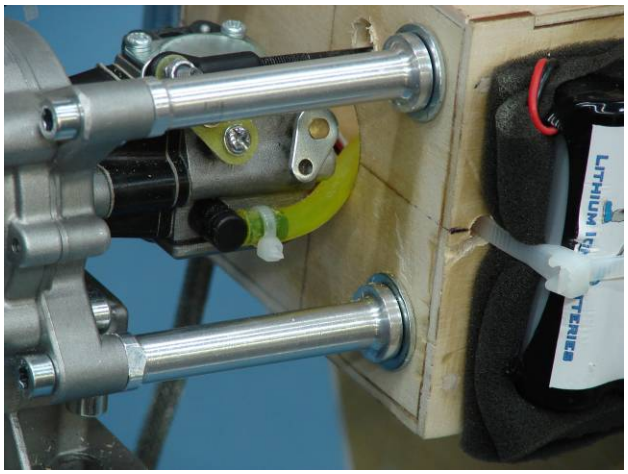
12. Feed filler line through dot and plug line into filler plug as shown.



13. Feed vent line tubing through bottom of fuse. Cut off excess fuel line.

Note: Place a zip tie around the vent line as shown. Be careful not to tighten the zip tie to the point of closing the vent line. This will prevent the vent line from falling back inside the fuse and flooding the airplane with gas during fueling.

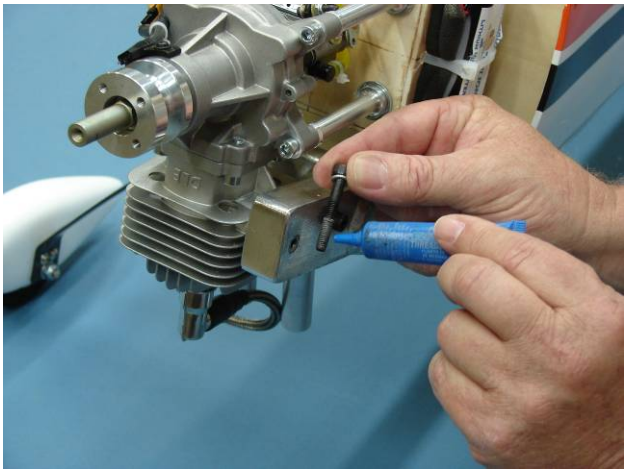
14. Secure fuel pick up line to engine carburetor with small nylon tie.



15. Route the vent line on top of the fuel tank and secure with small nylon ties as shown. This will stop excess fuel from draining out the vent line during an extended down line or when lifting the tail.

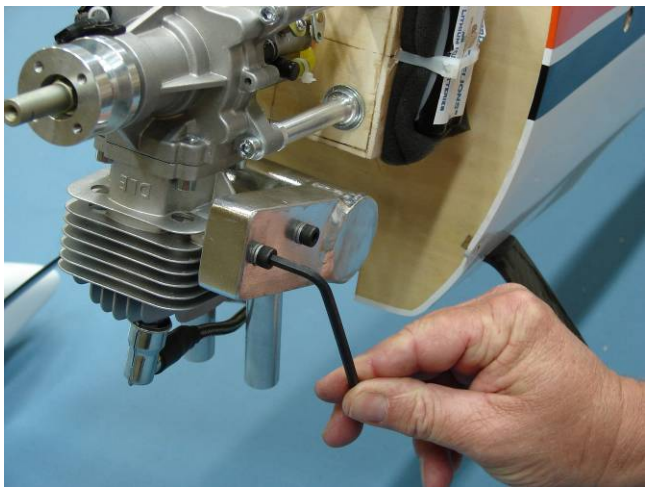
PITTS MUFFLER INSTALLATION FOR GAS ENGINE

1. Use blue loctite to ensure the muffler mounting bolts do not come loose due to vibration.



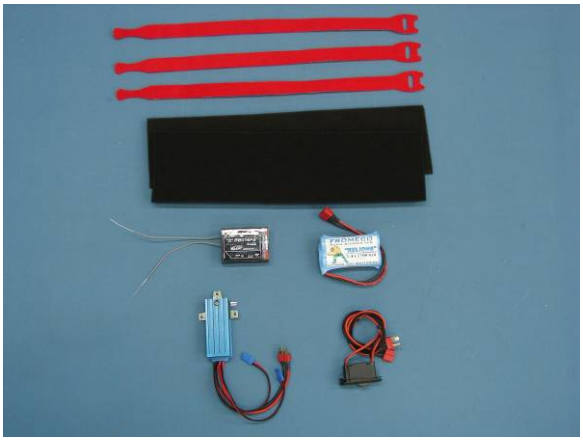
2. Attach the muffler to the motor at this time.

Note: Muffler will be removed during cowl installation. It may be left off at this time in order to aid in cowl installation.



RADIO INSTALLATION

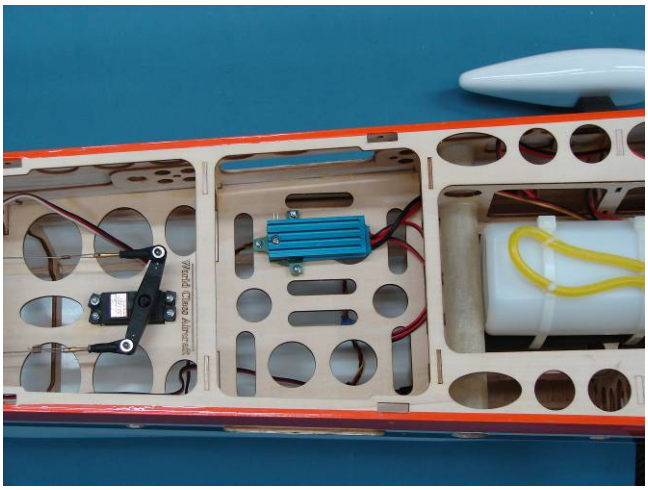
1. Gather the radio components as shown below. Battery, Switch, Regulator if used, receiver, foam rubber and Velcro one wrap straps.



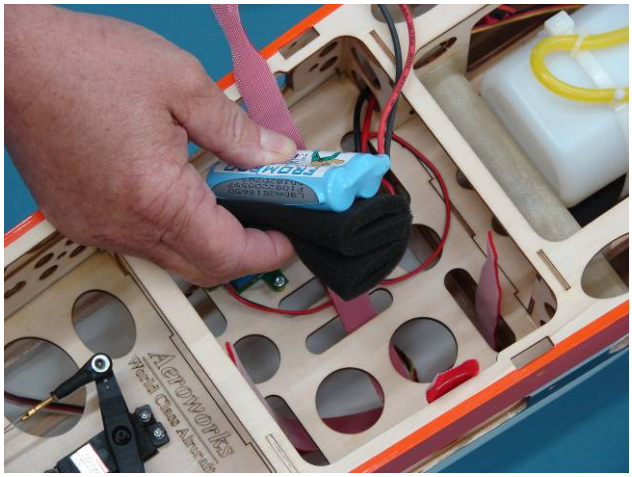
2. Mount radio switch in accordance with the switch manufacturers instructions and hardware.

Note: Ensure switch does not interfere with wings or cowl installation.

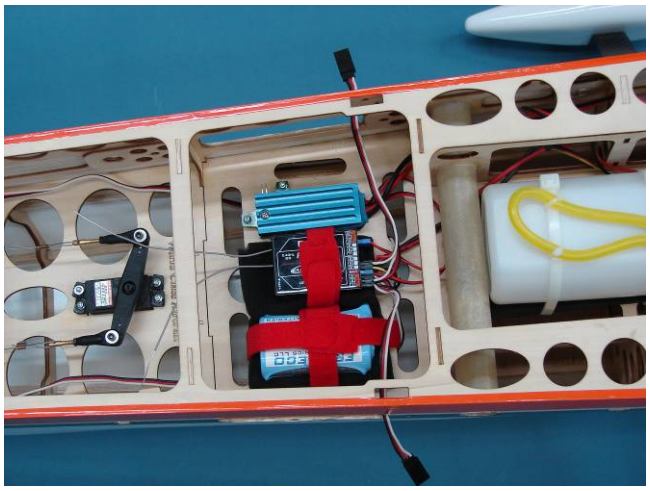
3. Install regulator in accordance with manufacturers recommended installations.



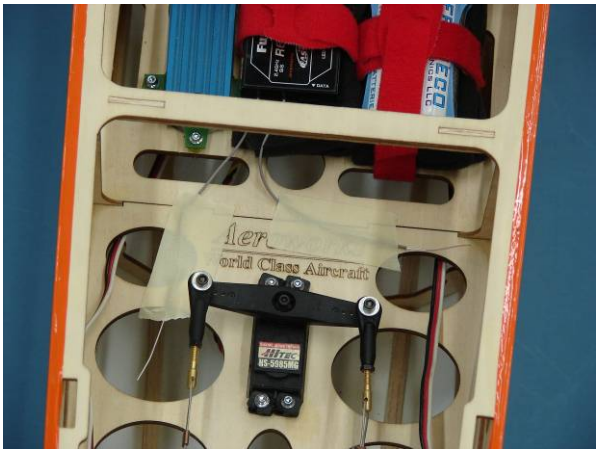
4. Install battery using foam padding and Velcro one wrap straps.



5. Install receiver using foam padding and Velcro one wrap strap as shown.

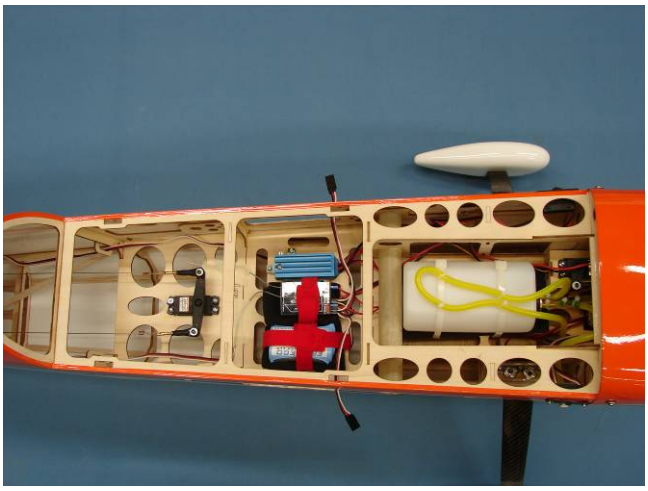


6. Use tape to secure the receiver antennas inside the fuse.



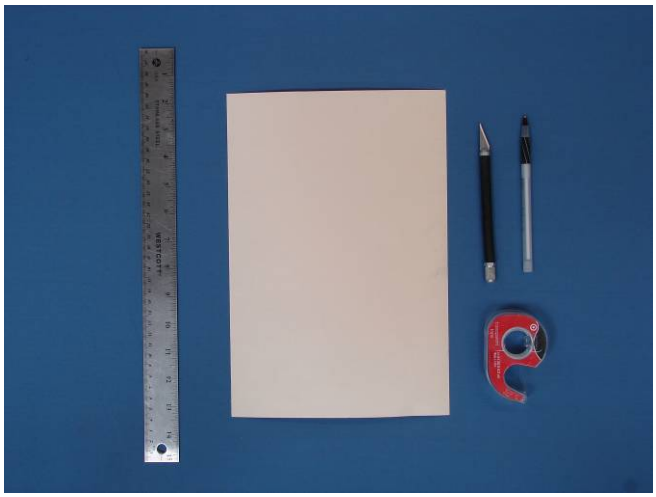
7. Typical radio installation shown for heavier engine selections.

Note: If models CG is tail heavy move batteries forward. If models CG is nose heavy move batteries to the rear.



COWL INSTALLATION FOR GLOW MOTORS

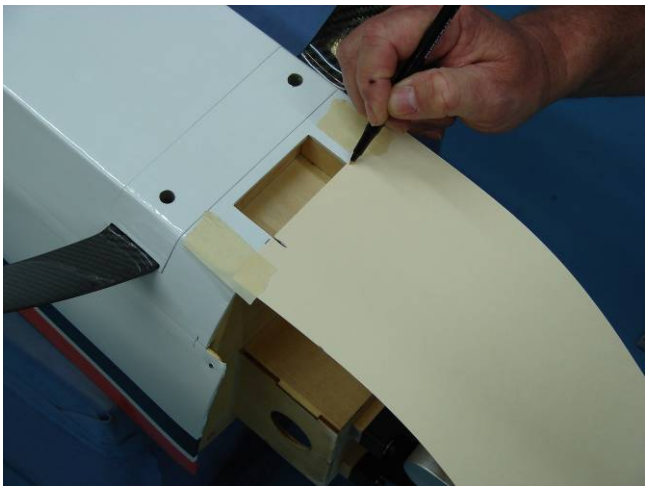
1. Gather the materials as shown below. Template material, hobby knife, ruler, tape, marker and pencil.



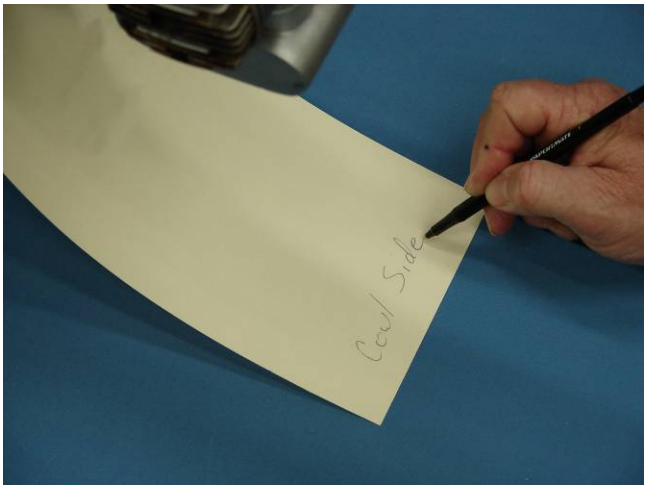
2. Measure 1/4” back from F1 on both sides of the air outlet as shown.

3. Align template with marks and Tape template to the fuse. Mark the location of the air exit from fuse onto template.

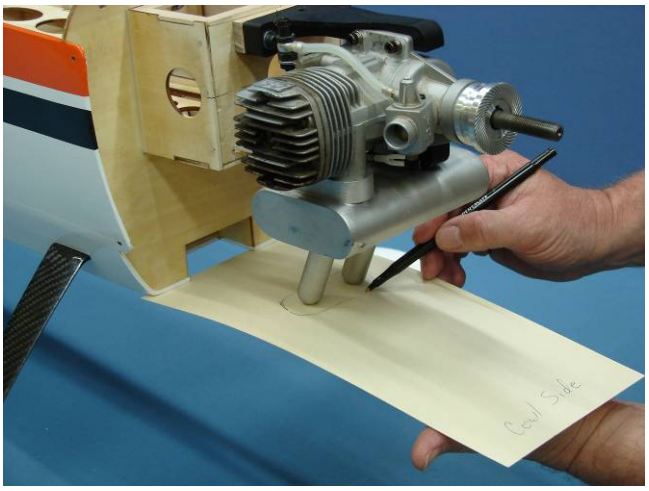
Note: It may be necessary to cut a notch in the template for the muffler.



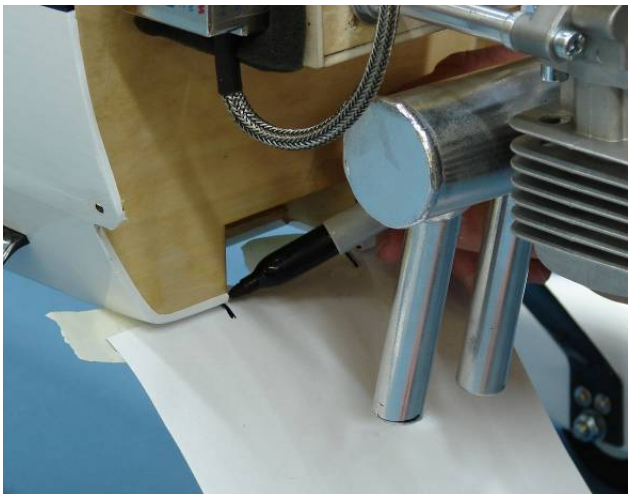
4. Mark **“Cowl Side”** on the top side of the template. It is very important that the template does not change position when attached to the cowl.



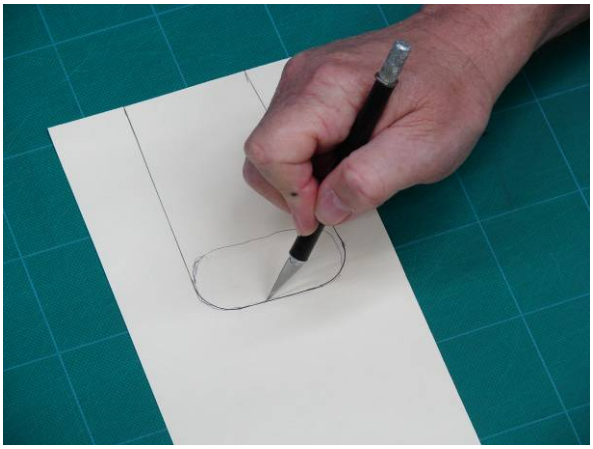
5. Flip the airplane over and trace the muffler shape onto the template, and leave 1” of space between the cutout and the muffler.



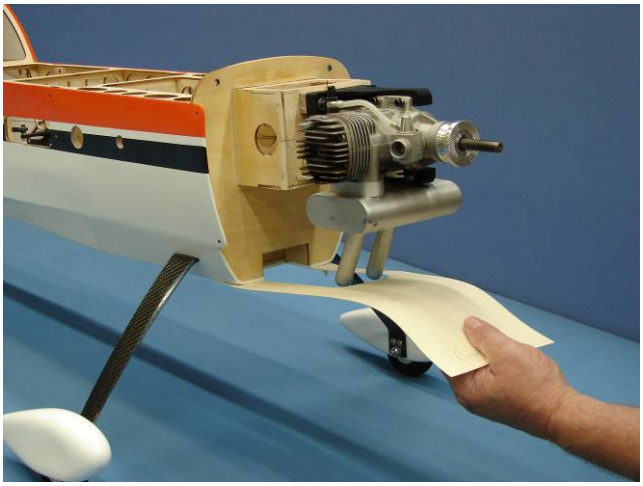
6. Mark the location of the air exit from fuse onto template.



7. Cut out the template using the line marked in the previous step. Use marks made in step 6 to align cut out with air exit on the bottom of the fuse.

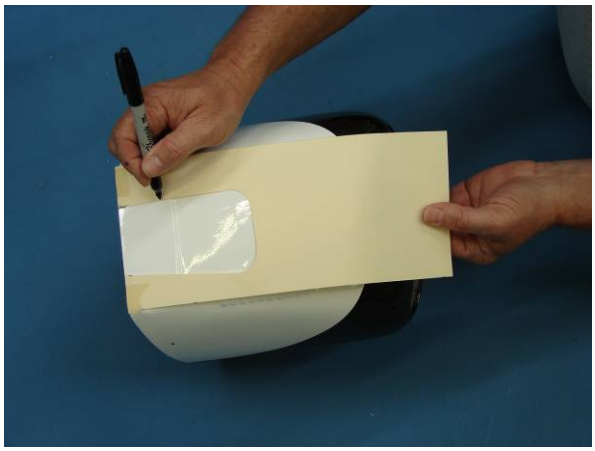


8. Check the fit of the template at this time. It may be necessary to make small adjustments to the cutout to get it to fit properly.

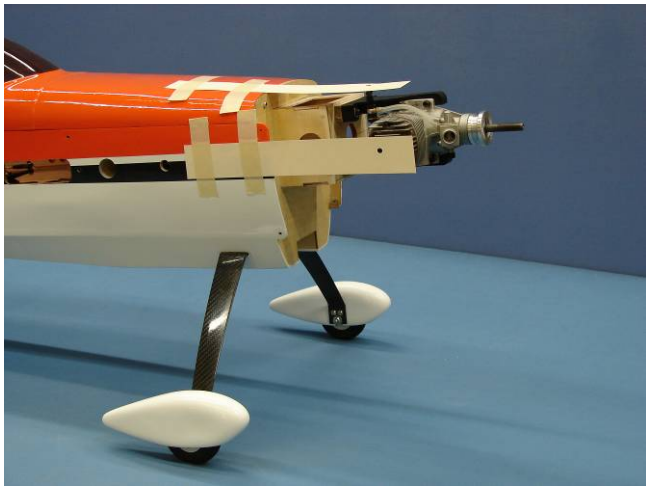


9. Align template with bottom of cowl. Use a felt tip marker to transfer the template cutout pattern to the cowl and mark cut location. Using a rotary cutting tool cut out the opening in the cowl.

Note: Pay close attention to the marker you choose. Some permanent markers may not be easily removed. Also, When using rubbing alcohols or other paint removers, always test on painted parts before using!



10. Cut a strip of the template long enough to reach the glow plug on the engine. Tape this strip to the side of the fuse and mark the location of the plug. Also use this method to locate the needle valve adjustment screw.

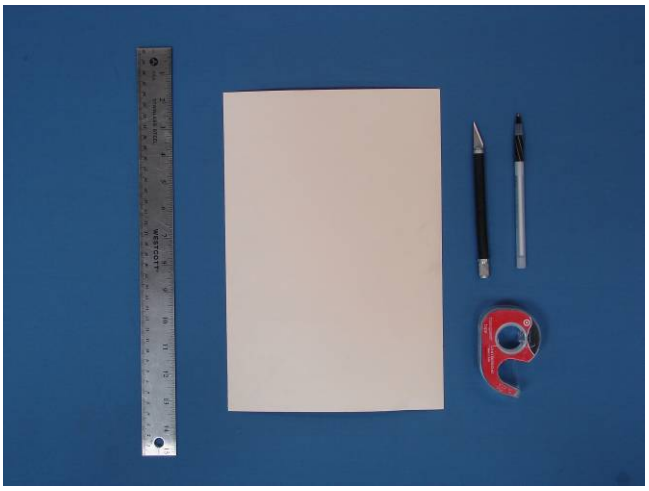


11. Bolt the cowl in place and slide the template over it. Use a pen to transfer the location of the cut out onto the cowl.

12. Cut out the marked area just like the previous steps.

COWL INSTALLATION GAS MOTOR

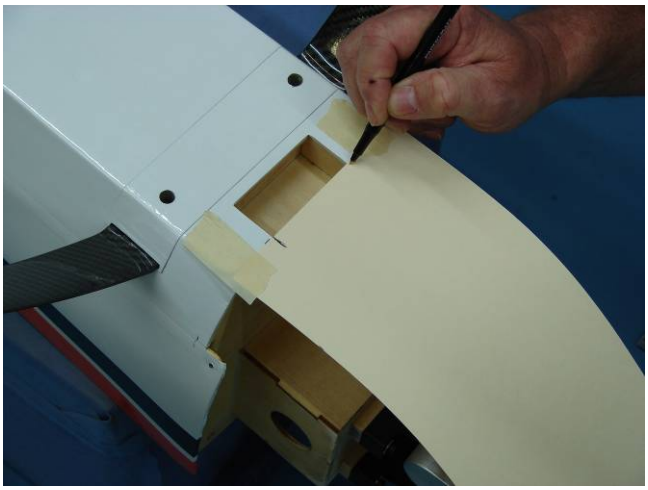
1. Gather the materials as shown below. Template material, hobby knife, ruler, tape, marker and pencil.



2. Measure 1/4” back from F1 on both sides of the air outlet as shown.

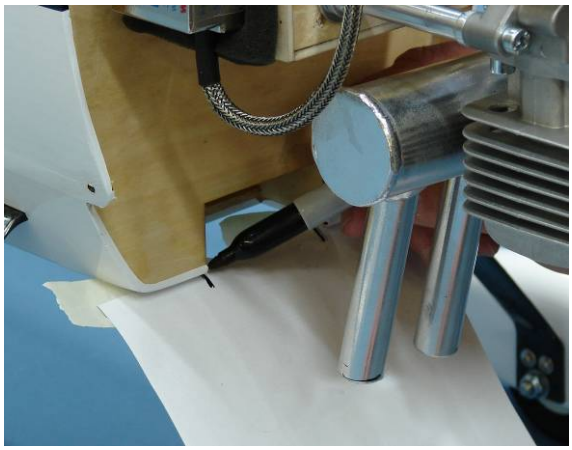
3. Align template with marks and Tape template to the fuse. Mark the location of the air exit from fuse onto template.

Note: It may be necessary to cut a notch in the template for the muffler.

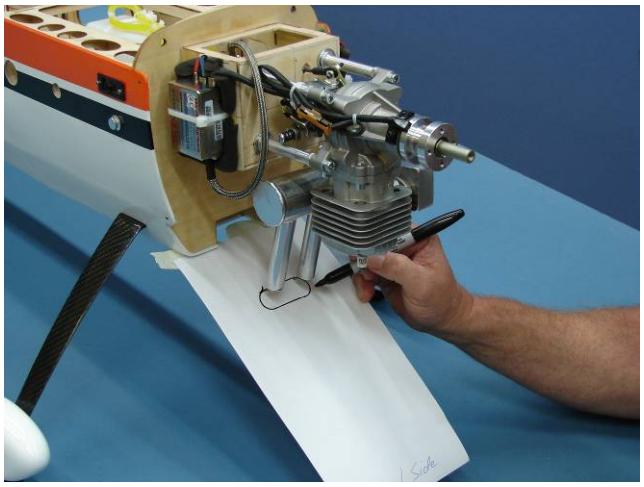


4. Mark the location of the air exit from fuse onto template.

Note: It may be necessary to cut a notch in the template for the muffler.

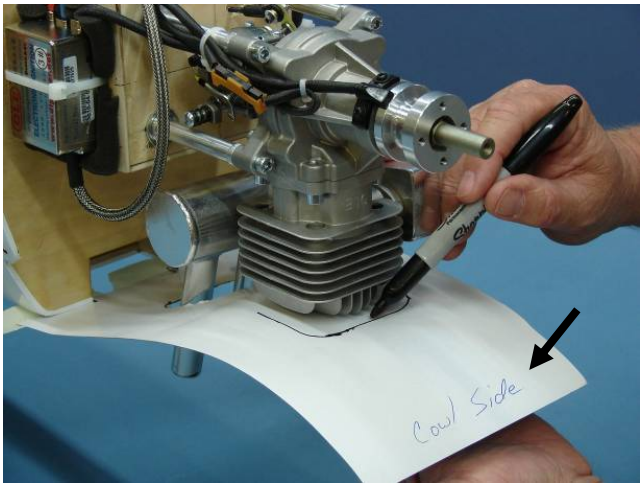


5. Mark the location of the muffler exits as shown. Use a hoppy knife to remove this section of the template.

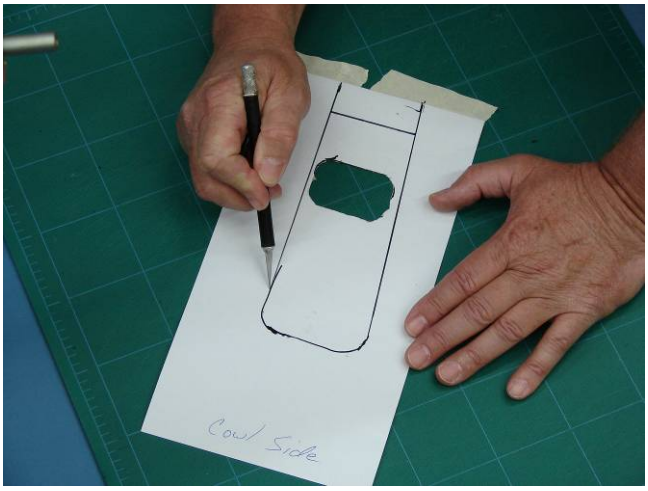


6. Trace around the head of the engine being careful to keep the template in the same location.

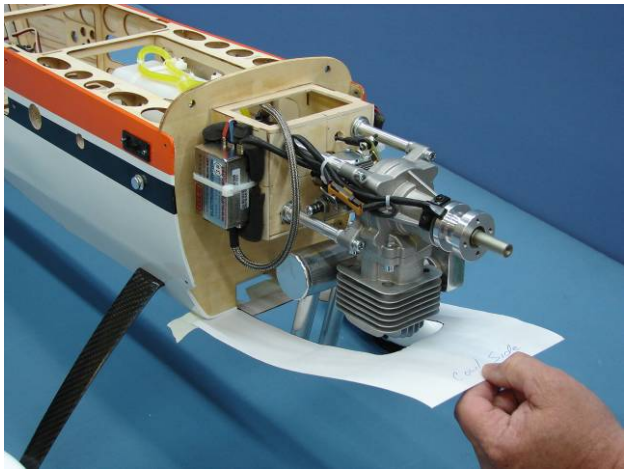
Note: Mark “Cowl Side” on template.



7. Use a hobby knife to cut out the engine cylinder exit opening as shown.

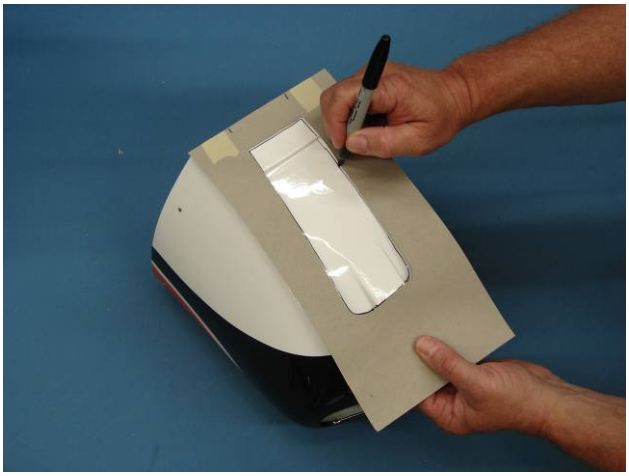


8. Check the fit of the template at this time. It may be necessary to make small adjustments to the cutout to get it to fit properly.



9. Align template with bottom of cowl. Use a felt tip marker to transfer the template cutout pattern to the cowl and mark cut location.

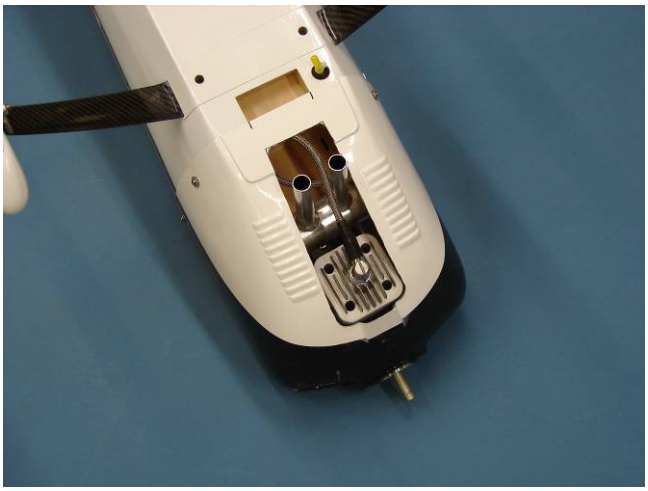
Note: Pay close attention to the marker you choose. Some permanent markers may not be easily removed. Also, When using rubbing alcohols or other paint removers, always test on painted parts before using!



10. Remove the template and use a rotary cutting tool and sanding drum to cut out the openings in the cowl.

Note: Take care not to cut or scratch the cowl.

11. Mount cowl to the fuse using
    (4) 4-40x16mm button style hex head bolts
    (4)#6 bonded washers



Electric Motor, Battery and ESC installation

1. Gather the following items for electric conversion:

◊ 1 - Electrfly 1.60 Outrunner motor
◊ 1 - 80 AMP Speed Control
◊ 2 - 5 cell 5000mah li-po batteries
◊ 1 - Great planes large outrunner motor mount

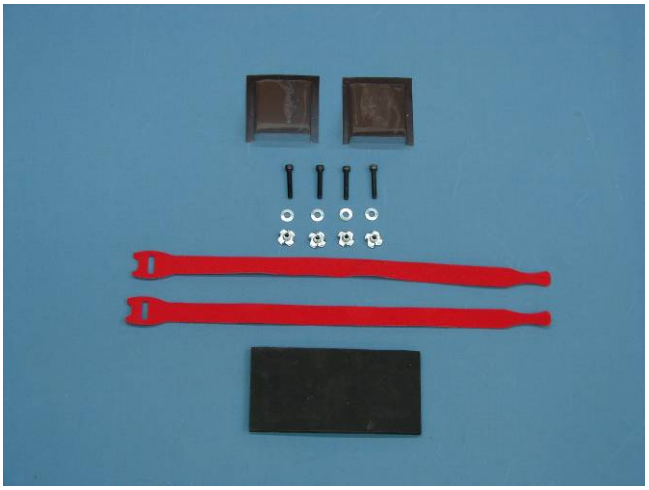
2. Use a covering iron to seal the covering before removing any material.

3. Use a sharp X-Acto knife to remove the covering from the hot air exits.

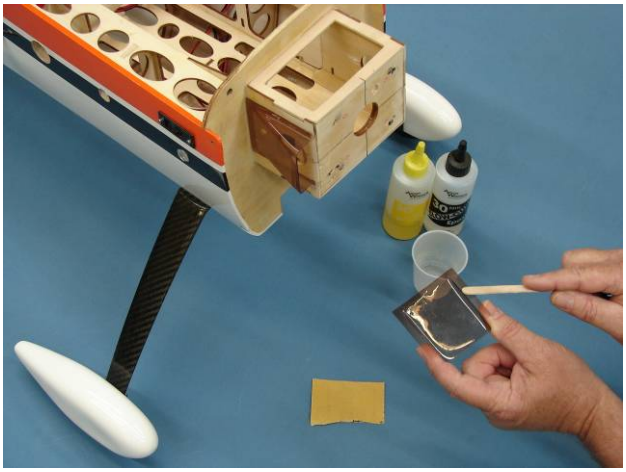
4. Final hot air exit holes shown below. It is recommended to go over the edges and seal them down with a covering iron.

5. Gather the following items for electric conversion:

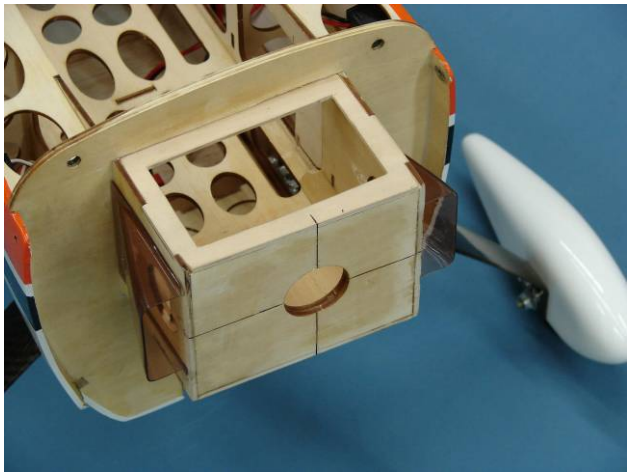
◊ 4 - 8-32 Mounting bolts
◊ 4 - 8-32 Blind Nuts
◊ 4 - 8-32 Flat Washers
◊ 2 - Plastic Air inlets
◊ 2 - Velcro Straps
◊ 1 - Foam Pad



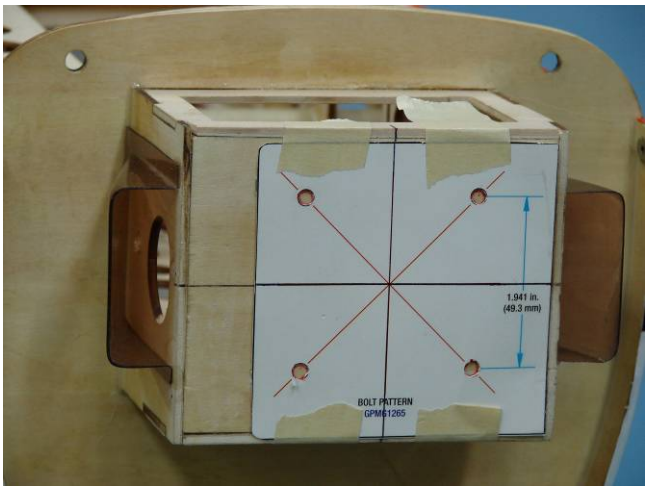
6. Use 30 minute epoxy to glue the air inlets in place. Use tape to secure the inlets to the motor box while the glue cures.



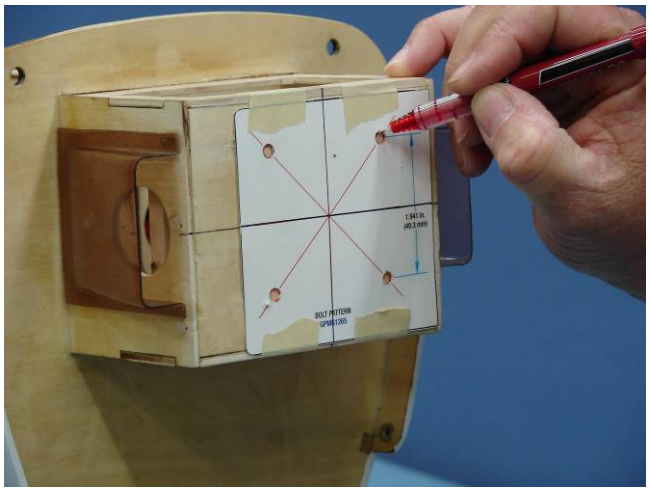
7. Finished air inlet installation shown below.



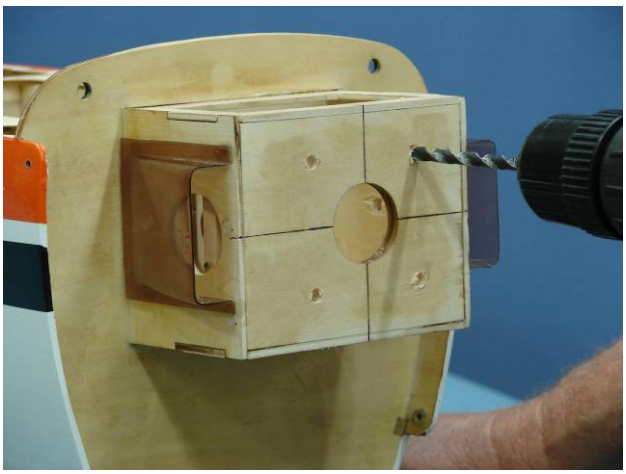
8. Tape mounting template (supplied with great planes motor mount) to the firewall. Ensure that the thrust lines are centered before moving on.



9. Mark location of motor mount holes on the firewall as shown below.



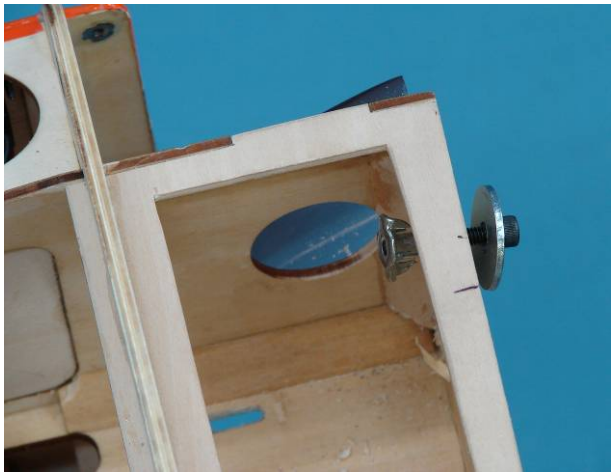
10. Use a 1/4 drill bit to drill the engine mounting holes.



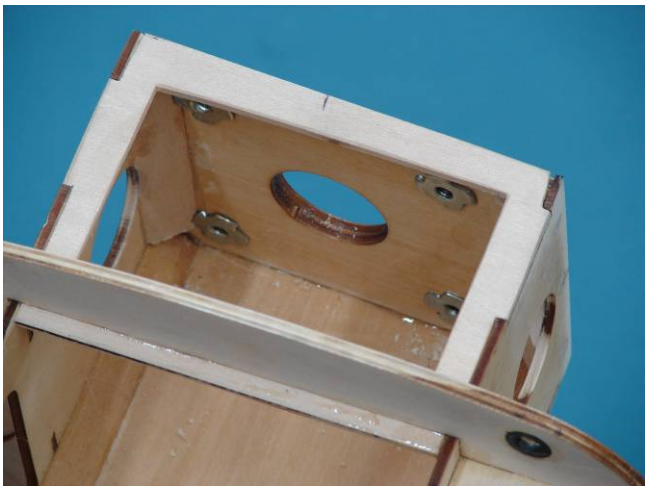
11. Use a 8-32 bolt along with a large fender washer to install the blind nuts as shown below.

12. Tighten the bolt until the blind nut is fully seated in the firewall.

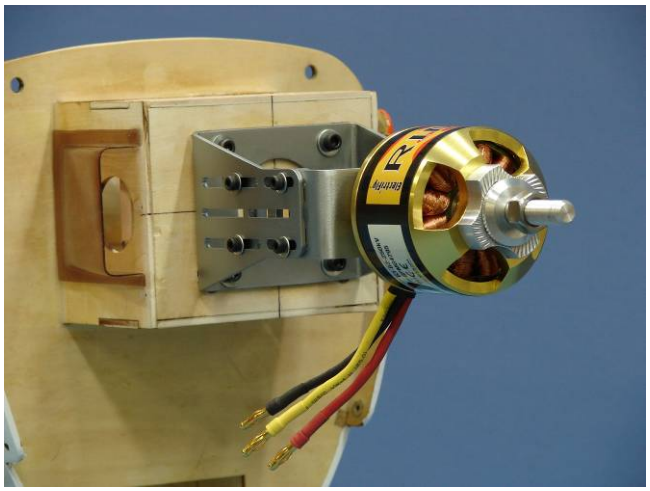
Note: Use thick CA to help secure the blind nut to the firewall.



13. Repeat the above steps for the 3 remaining blind nuts.

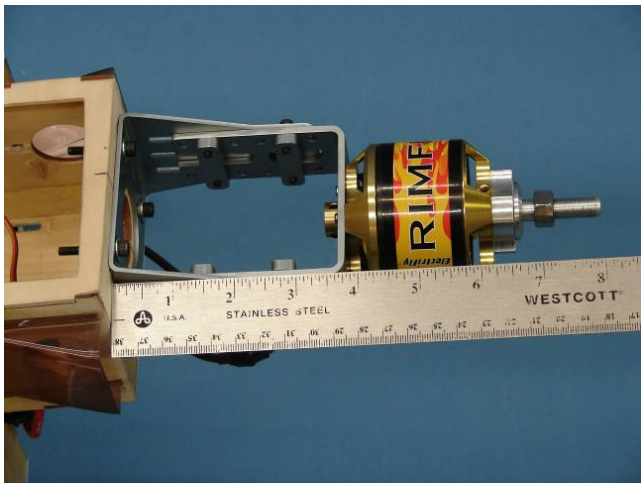


14. Following manufactures instructions mount the motor to the mount. Use the supplied 8-32 mounting bolts to secure the mount to the fire-wall

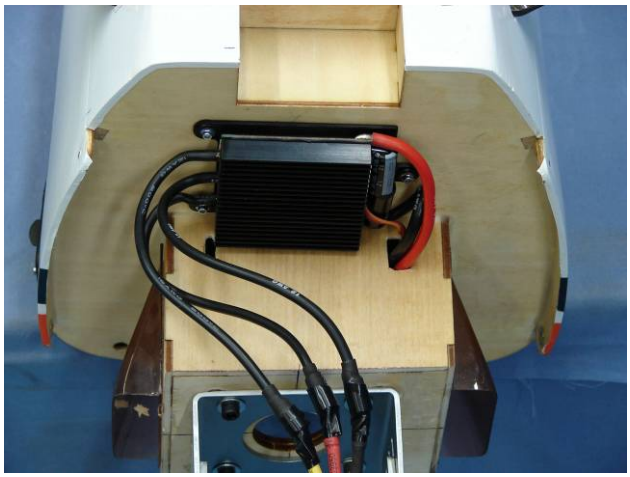


15. Adjust the motors position until the thrust washer is 6 1/2” away from the firewall.

Mounting Distance is: <u>6 1/2”</u>

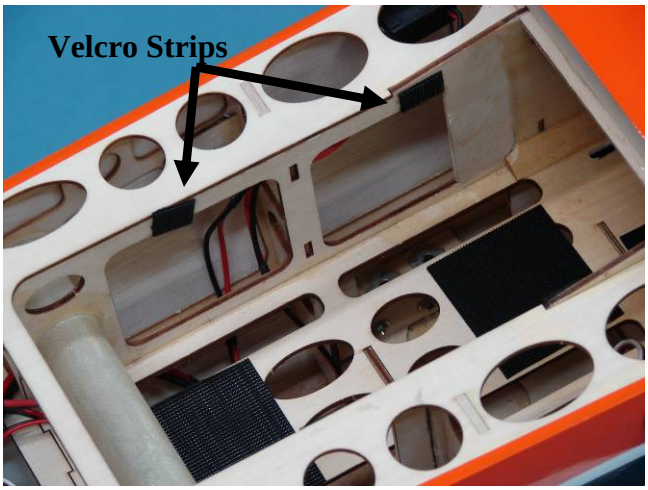


16. Mount the ESC to F1 as shown below. Ensure that the speed control will receive plenty of air-flow to keep it from overheating.

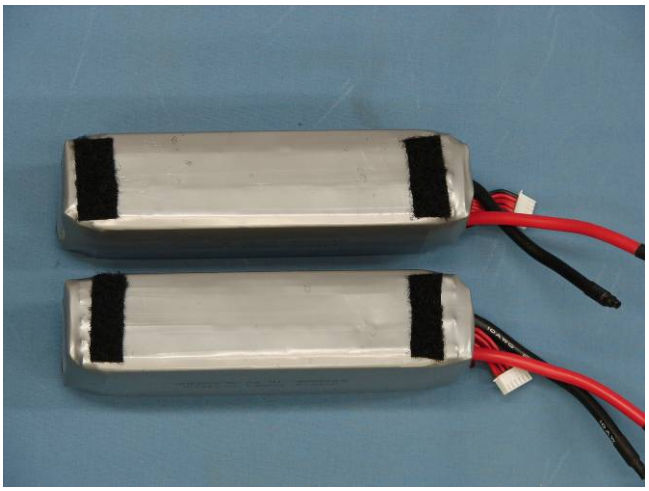


17. Attach the hook side of Velcro to the battery tray as shown below.

Note: Attach small pieces of Velcro to fuse sides as shown. This will help hold the One Wrap Velcro Straps in place when changing out the batteries.

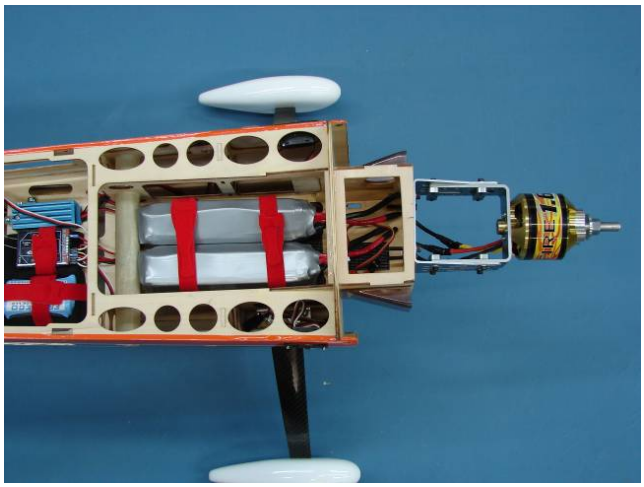


18. Attach the loop side of the Velcro to the batteries as shown.



19. Use two One Wrap Velcro Straps to firmly secure the batteries to the tray. Attach straps to the small pieces of Velcro at the fuse sides to help hold the straps in place while batteries are being changed.

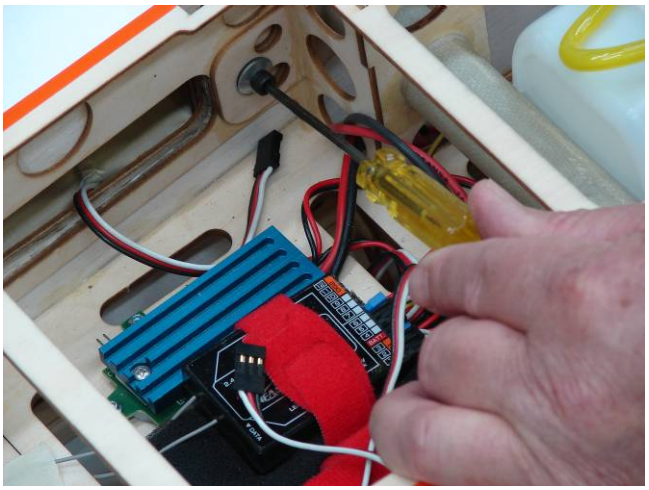
20. Finished electric installation shown below.



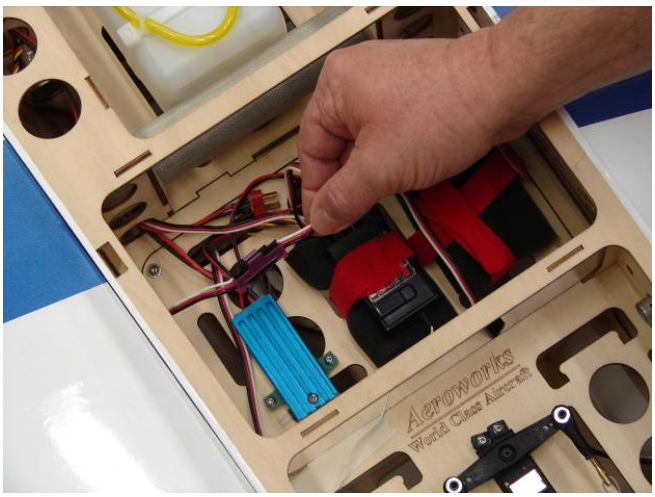
PRE-FLIGHT PREPARATION

1. Gather (2) 8-32 wing mounting bolts, (2) #8 rubber backed washers and (4) hairpins for preparation of mounting the wings.

2. Slide the wing tube in the fuse wing tube sleeve. Slide the wings on the wing tube and plug in the aileron servo connectors. Slide the rubber backed washers on the wing mounting bolts and insert bolts through the fuse side and into the wing root blind nuts. Tighten snugly but do not over tighten and crack the fuse or wing root wood.

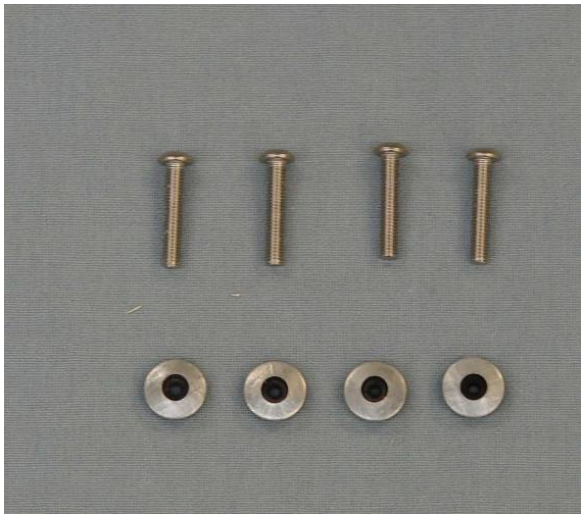


3. Attach the 6” extension to the servo lead and secure with Aeroworks Safety Clip. Ensure the connectors will not come apart from vibration or light tension.



4. Install hairpins into both front and rear aluminum anti-rotation wing dowels to provide additional security.

5. Gather (4) 4-40 stab mounting bolts and (4) #6 small rubber backed washers.



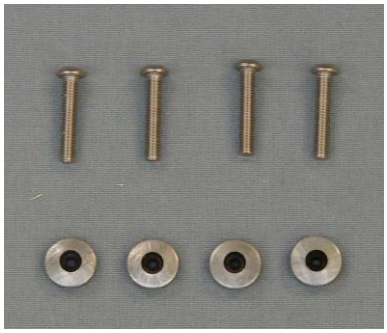
6. Slide the stab tubes in the fuse stab tube sleeves. ***(Long Back / Short Front)*** Slide the stabs on the stab tubes and connect pushrod to servo arm. Slide the rubber backed washers on the stab mounting bolts and insert bolts through the stab mounting tabs and into the fuse blind nuts. Tighten snugly but do not over tighten and crack the stab mounting tabs or the fuse sides.

7. Mount the cowl using the cowl mounting bolts and rubber backed washers. The rubber backed washers are to prevent the fiberglass cowl from cracking and to prevent mounting bolts from loosing from normal engine vibration.

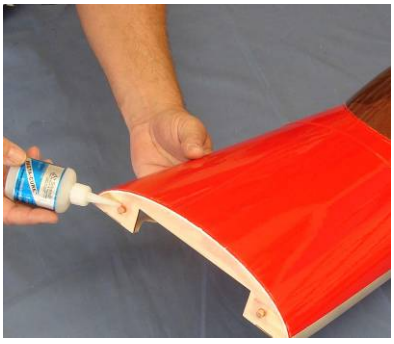
8. Gather the (4) 4-40 hatch mounting bolts and (4) #6 small rubber backed washers.

Note: It is highly recommended you apply thin CA glue to the front hold down dowels. This is a High vibration area and can loosen the front dowels.

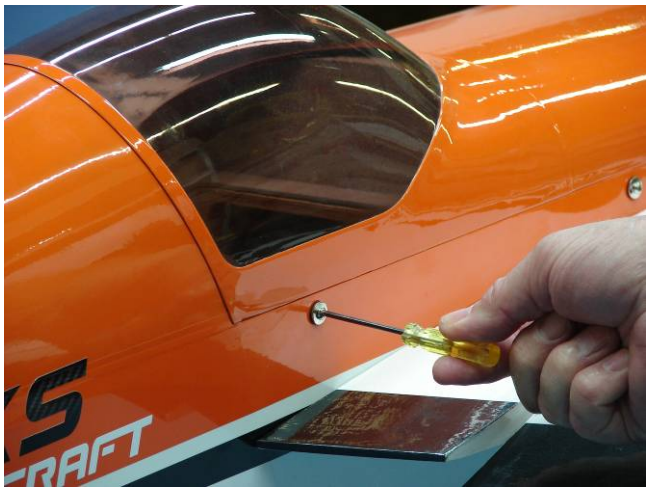
Always check the front dowels are secure before each flying session



Us thin CA to secure front hatch hold down dowels



9. Slide the rubber backed washers on the hatch mounting bolts and insert bolts through the hatch mounting holes and into the fuse blind nuts. Tighten snugly but do not over tighten and crush the hatch or the fuse sides.



DECAL INSTALLATION

Decal installation

1. Decals supplied with the kit may vary from the photos below. Decal installation instructions are for reference purposes only.

   Gather supplied decals, transfer tape, ruler, scissors, hobby knife, plastic squeegee or credit card, Windex or Application fluid like ***Rapid Tac***. Also, a solution of 1 drop of dish detergent to a cup of water sprayed on the model will assist in proper positioning.

Note: Clean surface and tighten all covering before any decals are applied.

2. Placement of factory decal package shown. Included decals may differ.

3. Use a straight edge and a hobby knife to separate the decals from the rest of the decal sheet.

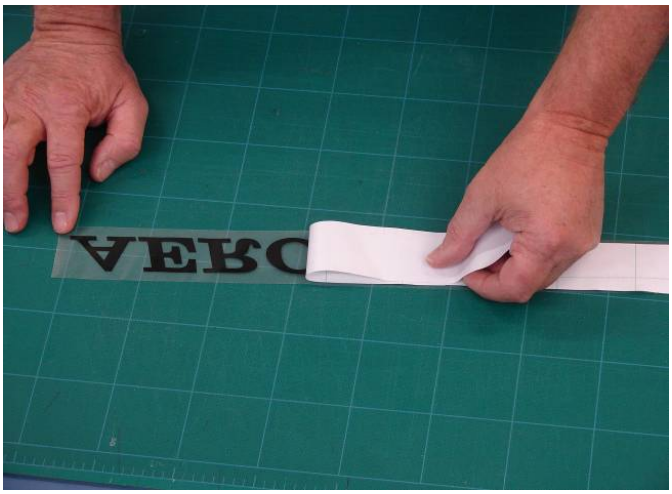
4. Cut a strip of transfer tape the same size as the decal cut in the previous step.

5. Peel the backing from the transfer tape.

6. Apply the transfer tape on top of the decal. The adhesive side should contact the decal itself.

7. Firmly press the transfer tape onto the decal.

8. Peel the backing away from the decal.



9. Spray the area with application fluid before installing the decal to allow a longer working time and aid in positioning the decal.

10. Apply the decal onto the surface.

11. Using a plastic squeegee or credit card. Spread decal smooth and remove all excess application fluid. Let decal set until dry enough to be able to remove transfer tape without removing decal. Do not leave until completely dry or transfer tape will be difficult to remove.

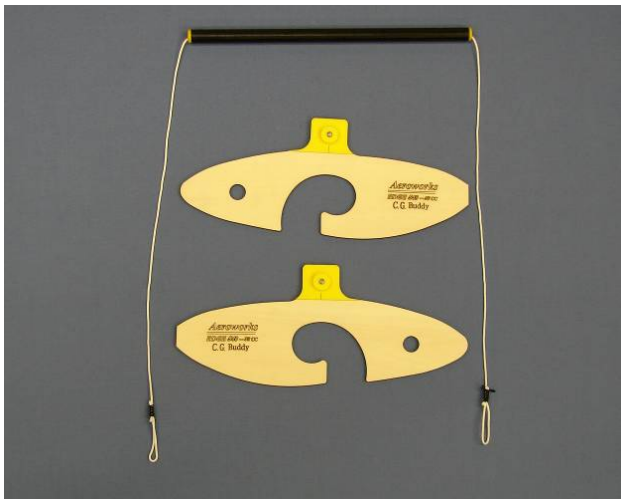
12. Pull transfer tape from top of decal. Take care not to pull away or damage decal.

Center Of Gravity– CG Buddy

1. Aeroworks has included the new CG Buddy with the 30cc Edge 540. This handy tool will allow the builder to balance the airplane without the need for an assistant.

Note: 50cc Edge shown, steps will be similar.

2. Gather the CG buddy as shown below:



3. Slide wings away from fuse and install the CG Buddy on the wing tube and front rotation dowel as shown. The cable attachment should be on the top side of the wing. Make sure the CG Buddy is securely latched to the wing tube and dowel before moving further.

4. Slide wing back against the fuse as shown below.

5. Install CG Buddy on the opposite wing using the same methods described above.

6. Attach loop to cable attachment as shown below.

7. Slide wing back against fuse insuring both wings are pushed firmly against fuse.

8. Lift airplane from center handle as shown, plane should sit level when lifted. Balance the Edge 540 without fuel in the tank with the batteries installed and **READY TO FLY**. Try to balance the model by moving the batteries and receiver before adding any ballast.

IMPORTANT

The CG Buddy **is not** adjustable and is set to balance the airplane at the recommended CG of **4.5”** this is just a starting point and the C.G. can be adjusted as the pilot becomes familiar with the airplane.

CENTER OF GRAVITY - CONTROL THROWS

Alternative Method for Measuring Center of Gravity (C.G.)

4 1/2”

Back from the wing Leading Edge measured at the wing tip

Warning

2. Balance the 30cc EDGE 540 ARF-QB without fuel in the tank with the batteries installed and ready to fly. The engine, radio, servos, and battery you use will determine the final weight and locations of equipment. Try to balance the model by moving the battery and receiver before adding any ballast.

Note: Model should sit level when lifted from the wing tips

3. Start at recommended CG until you are comfortable with the flight characteristics of the aircraft. You may find this a bit nose heavy at first but that is fine to start with. After you are comfortable adjust the CG to suit your flying style in small steps, especially when shifting the CG toward the tail. Move the battery or add small stick on weights to the nose or tail as necessary.

4. For aerobatic flying a more aft balance point is better. For smooth sport flying a more forward CG is better. An aircraft that is too nose heavy does not fly well and is difficult to land. A tail heavy aircraft is uncontrollable and will likely crash.

5. We have test flown the model at 4 1/4” to 4 3/4” C.G. locations and found the model to fly well at all locations. However, best flight performance was achieved at the 4.5” location.

Control Throws

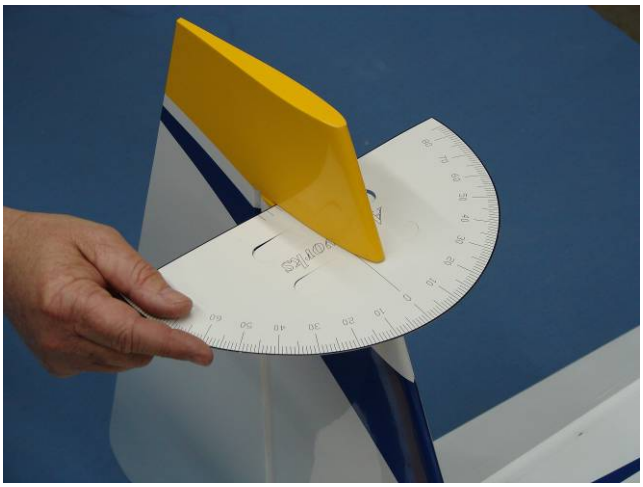
1. The amount of control throw should be adjusted using mechanical means as much as possible and then electronically with the radio. The control throws are shown in degrees and inches of deflection measured at the widest point of the control surface for both low and high rates.

2. Use the widest part of the aileron as shown to measure the aileron throw in inches.

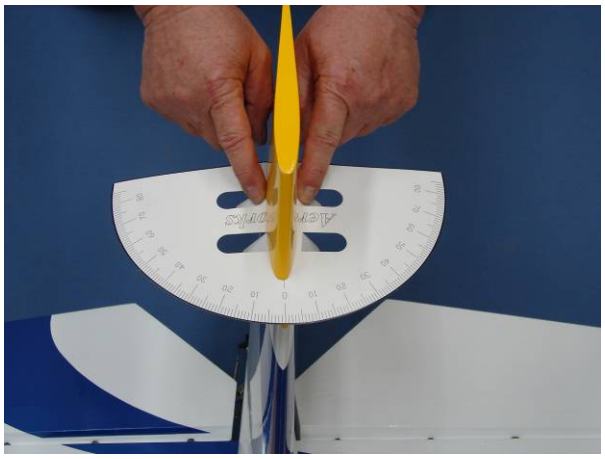
3. Use the widest part of the elevator as shown to measure the elevator throw in inches.

4. Gather the Rudder Throw Meter (***Supplied***) and scotch tape.

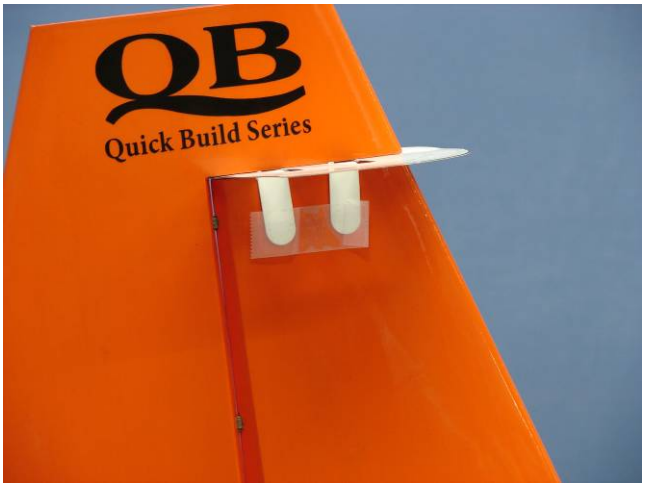
5. Slide the throw meter under the rudder boost tab.



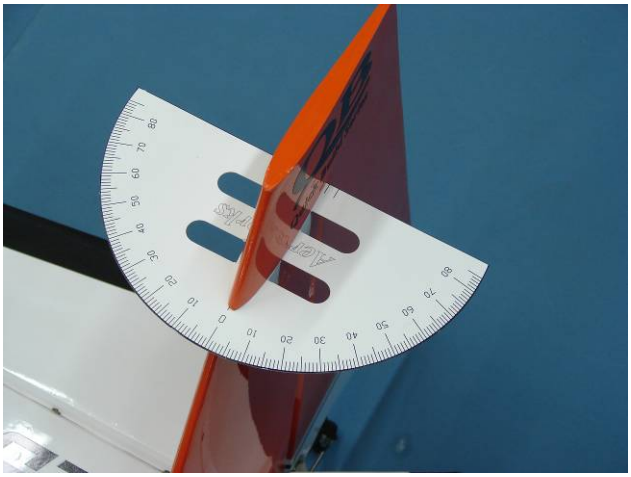
6. Center the throw meter on the rudder using the centering marks on the meter to aid with alignment. Bend the precut positioning tabs down around the fin.



7. Secure the tabs to the fin using scotch tape.



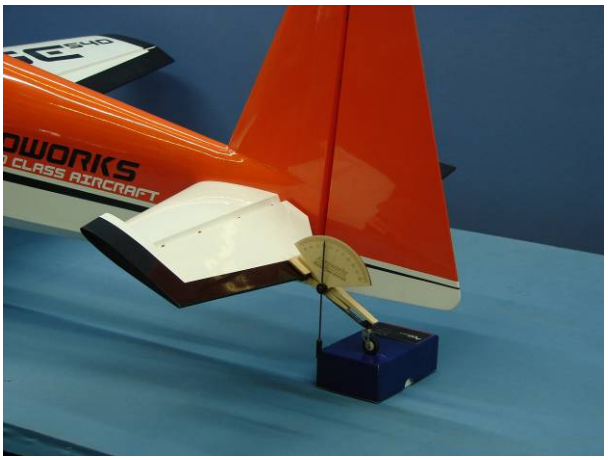
8. Degrees are measured at the tip of the boost tab as shown below.



9. Use the flight control deflection meter (***not supplied***) to measure the throws in degrees. Prop up the tail of the aircraft until the fuselage is parallel to the table top.

10. Use the widest part of the aileron to measure the aileron throw in degrees.

11. Use the widest part of the elevator to measure the elevator throw in degrees.



Control Throw Deflection Table

	Low Rate	Medium Rate
Aileron	1” or 22˚ up 1” or 22˚ down	1 5/8” or 30˚ up 1 5/8” or 30˚ down
Rudder	N/A” or 20˚ left N/A” or 20˚ right	N/A” or 35˚ left N/A” or 35˚ right
Elevator	1 1/2” or 16˚ up 1 1/2” or 16˚ down	2 1/2” or 30˚ up 2 1/2” or 30˚ down

For 3D flying use the following throws:

	High Rate
Aileron	2 1/2” or 40˚ up 2 1/2” or 40˚ down
Rudder	N/A” or 45˚ left N/A” or 45˚ right
Elevator	4” or 45˚ up 4” or 45˚ down

We recommend 15% Expo on low rates, 30% expo on high rates, and 60% expo on 3D rates as a starting point. You a can adjust from there to suit your own flying style.

Preflight Checks

Center of Gravity: Check CG is set properly.

Engine: The engine should run smoothly at all throttle settings with smooth transition from idle to full throttle without stalling or hesitation. Do not fly an unreliable engine. Read engine instructions including break in and tuning completely.

Prop balancing: Ensure prop is properly balanced prior to mounting on engine.

Flight Controls: Ensure all flight controls are free from binding and are centered. Check that all hinges are tight and will not pull out. Control linkages must be rigid and tight and have no slop. Confirm proper direction of ailerons, rudder, and elevator. Experienced flyers have lost airplanes due to reversed ailerons. Right roll is right up, left down. Left roll is left up, right down.

Batteries: Transmitter, ignition and receiver batteries are fully charged.

Fasteners: Check all engine bolts, wing bolts, hatch bolts, servo screws, control horn bolts, wheel collars, and clevis keepers are tight and secure.

Covering: Check all covering and seams are sealed and secure.

Radio: Check trims set to neutral and controls centered. Check rate and condition switches set properly. Check the receiver antenna is fully extended and not reversed on it self.

Range check: Do a range check with and without the engine running in accordance with the radio manufacturer instructions. If there is insufficient range or a large reduction with the engine running, do not fly until it is resolved!

Fuel: Fill the fuel tank before each flight.

Aerobatics

The 30cc EDGE 540 ARF-QB is capable of any aerobatic maneuver. After you gain some confidence and little experience flying the airplane you can cut loose and perform any maneuver you can think of. Here is a list of some of the more popular aerobatic and 3D maneuvers you can try:

- Loops and rolls
- Knife edge flight
- Stall turns
- Snap rolls
- 2, 4, and 8 point rolls
- Slow rolls
- Spins upright and inverted
- Flat Spins upright and inverted
- Harriers upright and inverted
- Water falls
- Torque Rolls
- Rolling circles

The sky and your imagination are you only limits.

FLY and ENJOY!

AEROWORKS

Accessories Available From Aeroworks

For more information or to order accessories visit our website: WWW.AERO-WORKS.NET

Custom Wing/Stab Bags

Designed especially for 30cc-35cc aircraft. The wing and stab bags are lightweight, yet heavy enough to protect your wings and stabs from hanger rash or small nicks and dents from transporting too and from the flying field.

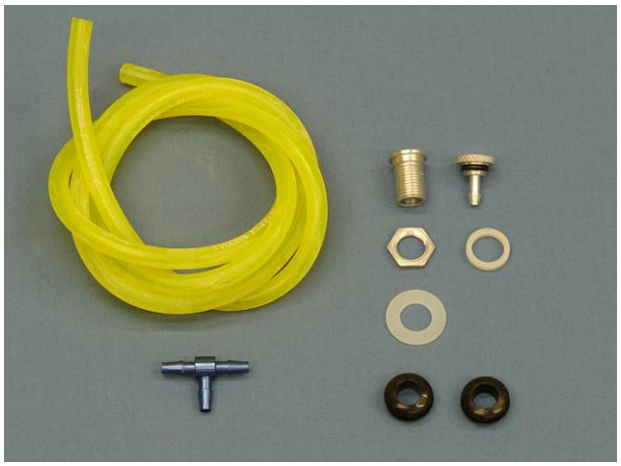
Optional Decal Package

Made using high quality printed vinyl these decals will make the 30cc Edge the most beautiful airplane at your flying field.

Fuel Line Installation Kit

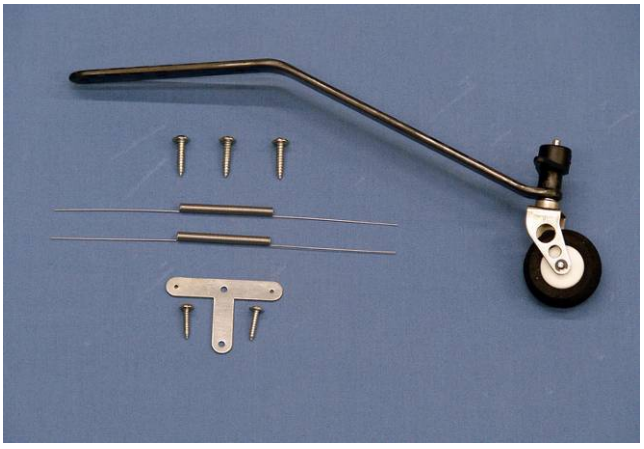
The fuel line installation kit includes everything needed to plumb your gasoline powered aircraft.

- 3 feet of 1/8" I.D. Dubro tygon tubing is provided.
- Simple ¼ turn fuel dot provides a nice, finished look to any model.
- Aluminum fuel "T" with 1/8" I.D. will provide superior fuel flow.



5-15 LB Carbon Tail Wheel

This Carbon Tail Wheel is designed to fit perfectly on the 30cc Edge. The carbon leaf spring adds tremendous strength compared to the stock aluminum tail wheel at a reduced weight.



Accessories Available From Aeroworks

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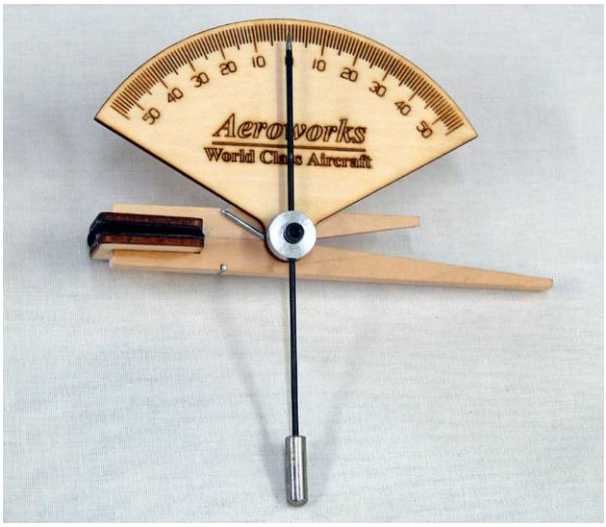
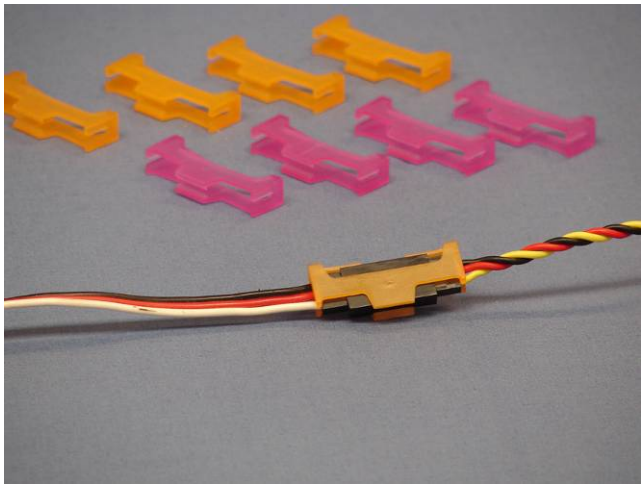
Custom Throw Meter

Use the Aeroworks Throw Meter to precisely set your control throws on the elevator and ailerons.



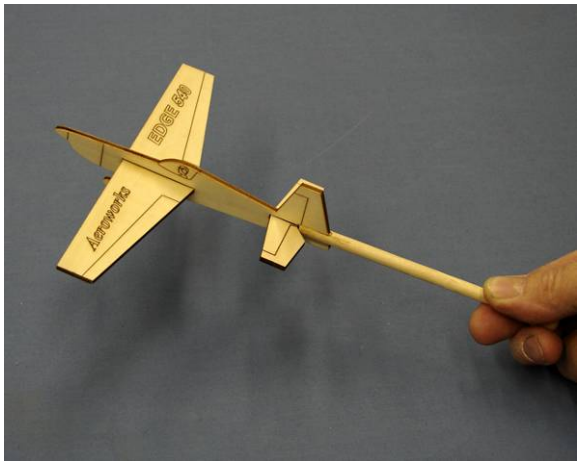
Aeroworks Safety Clips

Made from flexible plastic the Aeroworks Safety Clips provide a easy and safe way to secure your servo connections.



Edge 540 Stick Plane

The Edge 540 Stick plane is an accurate replica of the 30cc Edge. Use this to practice new maneuvers and learn airplane orientation before ever attempting it with the real thing.



2.5 Gallon Gas Hand Crank Fuel System

The 2.5 Gallon Hand Crank fuel system is perfect for pilots venturing into gas powered airplanes for the first time. This gas can comes out of the box assembled and ready for use.

30 cc EDGE 540 ARF-QB NOTES